APPENDIX A APPLICATION FORM

City of Sherwood Oregon

Home of the Tualatin River National Wildlife Refuge

Case No. _____
Fee _____
Receipt # _____
Date _____
TYPE _____

City of Sherwood

Application for Land Use Action

Type of Land Use Action Requested: (check all that apply)

- ☐ Annexation
- ☐ Plan Amendment (Proposed Zone _____)
- ☐ Planned Unit Development
- ☑ Site Plan (square footage of building and parking area)
- ☐ Variance (list standards to be varied in description)
- ☑ Conditional Use
- ☐ Partition (# of lots _____)
- ☐ Subdivision (# of lots _____)
- ☐ Other: _____

By submitting this form the Owner, or Owner's authorized agent/ representative, acknowledges and agrees that City of Sherwood employees, and appointed or elected City Officials, have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

Note: See City of Sherwood current Fee Schedule, which includes the "Publication/Distribution of Notice" fee, at **www.sherwoodoregon.gov.** Click on Government/Finance/Fee Schedule.

Owner/Applicant Information:

Applicant: TUAL bn LLC
Phone: 850-963-6011
Applicant Address: 515 Flagler Dr, Suite P200, West Palm Beach FL
Email: todd.ellwood@brightnightpower.com
Owner: Portland General Electric
Phone:
Owner Address: 121 SW Salmon St., Portland, OR 97204
Email:
Contact for Additional Information: Applicant - Todd Ellwood (BrightNIght), Owner - Laura Bishop (PGE)

Property Information:

Street Location: 20655 SW Langer Farms Pkwy
Tax Lot and Map No: Parcels 2s129A001650, 2S129B001800, 2S129A001651
Existing Structures/Use: Electrical utility facility infrastructure, infrastructure, including substation, poles, and lines
Existing Plan/Zone Designation: Light Industrial
Size of Property(ies) 9.47 acres, 12.62 acres, and 29.59 acres (of which ~8 acres are in City limits)

Proposed Action:

Purpose and Description of Proposed Action:

The proposed work involves replacing existing PGE utility infrastructure, adding new electrical infrastructure to interconnect a new renewable energy integration resource to PGE's Sherwood Substation and PGE's regional grid, and consolidating the existing 115kV transmission segment into a single shared structure economizing the space required to accommodate both utility infrastructure segments.

Proposed Use: Gen-tie Transmission Line

Proposed No. of Phases (one year each): One

Continued on Reverse

LAND USE APPLICATION FORM

Authorizing Signatures:

I am the owner/authorized agent of the owner empowered to submit this application and affirm that the information submitted with this application is correct to the best of my knowledge.

I further acknowledge that I have read the applicable standards for review of the land use action I am requesting and understand that I must demonstrate to the City review authorities compliance with these standards prior to approval of my request.

Todd Ellwood — 08/31/2026

Applicant's Signature — Date

Laura Bishop — 08/28/2026

Laura Bishop (Aug 28, 2026 08:44:32 PDT)

KMI

KMI

Owner's Signature — Date

The following materials must be submitted with your application or it will not be accepted at the counter. Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

☑ **3 Copies of Application Form*** completely filled out and signed by the property owner (or person with authority to make decisions on the property.

☑ **Copy of Deed** to verify ownership, easements, etc.

☑ **At least 3 folded** sets of plans*

☑ **At least 3 copies** of narrative addressing application criteria*

☑ **Fee** (along with calculations utilized to determine fee if applicable)

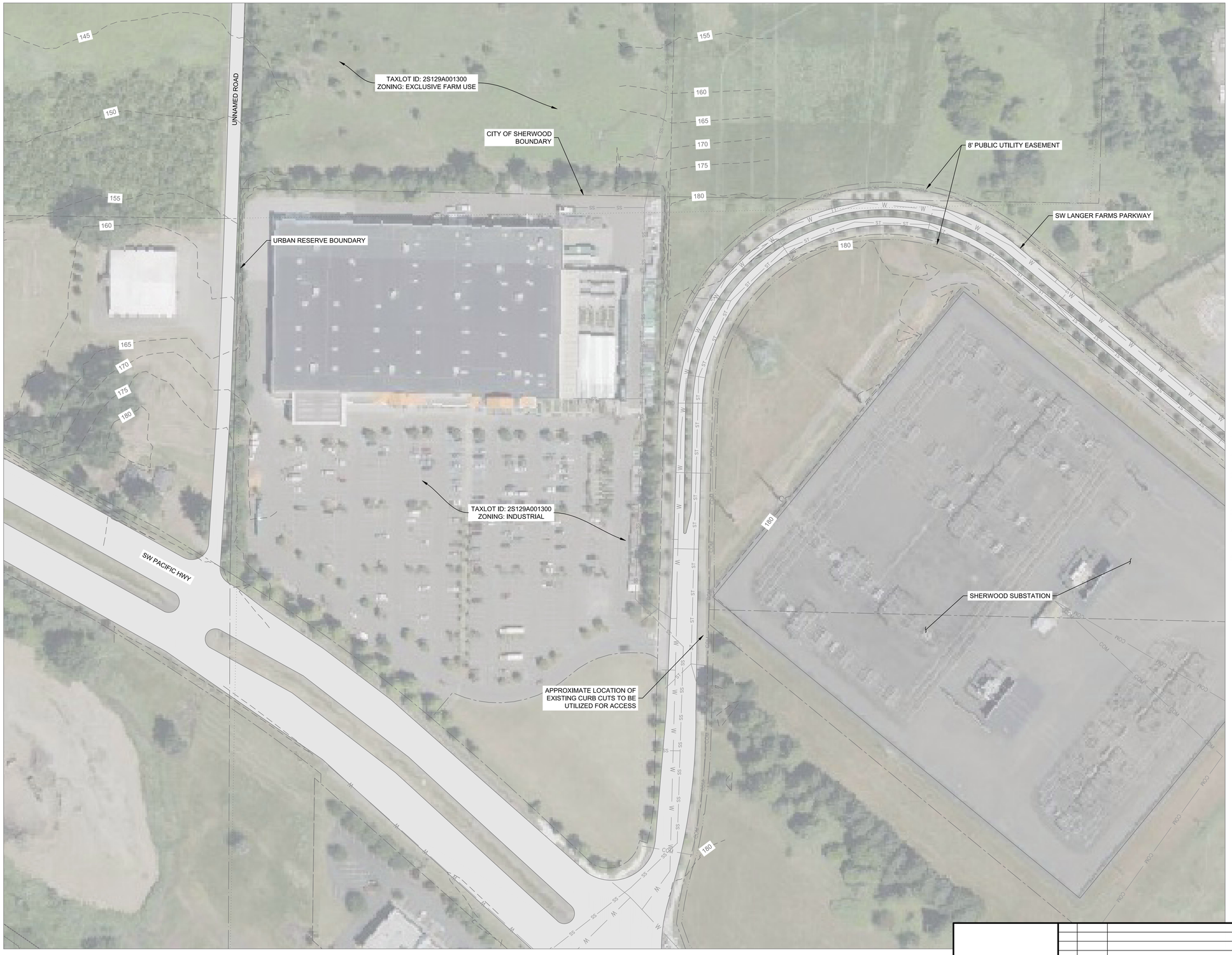
☑ **Neighborhood Meeting Verification** including affidavit, sign-in sheet and meeting summary (required for Type III, IV and V projects)

* **Note** that the required numbers of copies identified on the checklist are required for completeness; however, upon initial submittal applicants are encouraged to submit only 3 copies for completeness review. Prior to completeness, the required number of copies identified on the checklist and one full electronic copy will be required to be submitted.

APPENDIX B MAPS AND SITE PLANS

- Existing Conditions and Preliminary Site Plan
- Vicinity Map
- Surrounding Land Use
- Architectural Drawings
- Tax Maps

EXISTING CONDITIONS AND PRELIMINARY SITE PLAN



0 70 140

SCALE (IN FEET)

LEGEND

- PARCEL BOUNDARY
- EXISTING EASEMENT
- URBAN RESERVE BOUNDARY
- SHERWOOD CITY LIMITS
- EXISTING ROAD
- EXISTING CONTOUR (5')
- EXISTING COMMUNICATIONS UTILITY
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER UTILITY

NOTES:

1. THE LIMITS OF DISTURBANCE (LOD) WITHIN THE CITY OF SHERWOOD LIMITS PRESENTED HEREIN ENCOMPASS APPROXIMATELY 2.6 ACRES.
2. EXISTING TOPOGRAPHY PRESENTED HEREIN HAS BEEN GENERATED FROM U.S. GEOLOGICAL SURVEY, NATIONAL GEOSPATIAL TECHNICAL OPERATIONS CENTER - 3D ELEVATION PROGRAM, 20240112, USGS NED 1/3 ARC-SECOND CONTOURS FOR VANCOUVER E, WASHINGTON 1 X 1 DEGREE (PUBLISHED 20240112).
3. THE COORDINATE SYSTEM IS NRS 2011 OREGON STATE PLANES, NORTH ZONE, INTERNATIONAL FOOT.
4. NO CITY OF SHERWOOD REGULATED NATURAL RESOURCES OR OTHER KNOWN SENSITIVE AREAS ARE IDENTIFIED WITHIN THE PORTION OF THE LOD LOCATED INSIDE CITY LIMITS.
5. EXISTING FEATURES SHOWN ARE BASED ON AVAILABLE RECORD INFORMATION, PUBLICLY AVAILABLE GIS DATA, AND OTHER SOURCES DEEMED RELIABLE, BUT HAVE NOT BEEN FIELD VERIFIED UNLESS OTHERWISE NOTED.

Developer/Applicant

Company	Tual bn, LLC.
Contact	Todd Ellwood
Address	515 N Flagler Drive, Suite P200 West Palm Beach FL 33401
Email Address	todd.ellwood@brightnightpower.com

Owner

Company	Portland General Electric

Plan Producer

Company	Environmental Resources Management, Inc.
Contact	Alex Conzemius
Address	1050 SW 6th Ave Ste. 1650 Portland OR 97204
Email Address	alex.conzemius@erm.com

ISSUED FOR PERMIT
NOT FOR CONSTRUCTION

Rev.	Date	Description	By	Chk
0	8/31/2026	ISSUED FOR REVIEW	DF	BR

ERM

EXISTING CONDITIONS PLAN

DISCIPLINE NO.

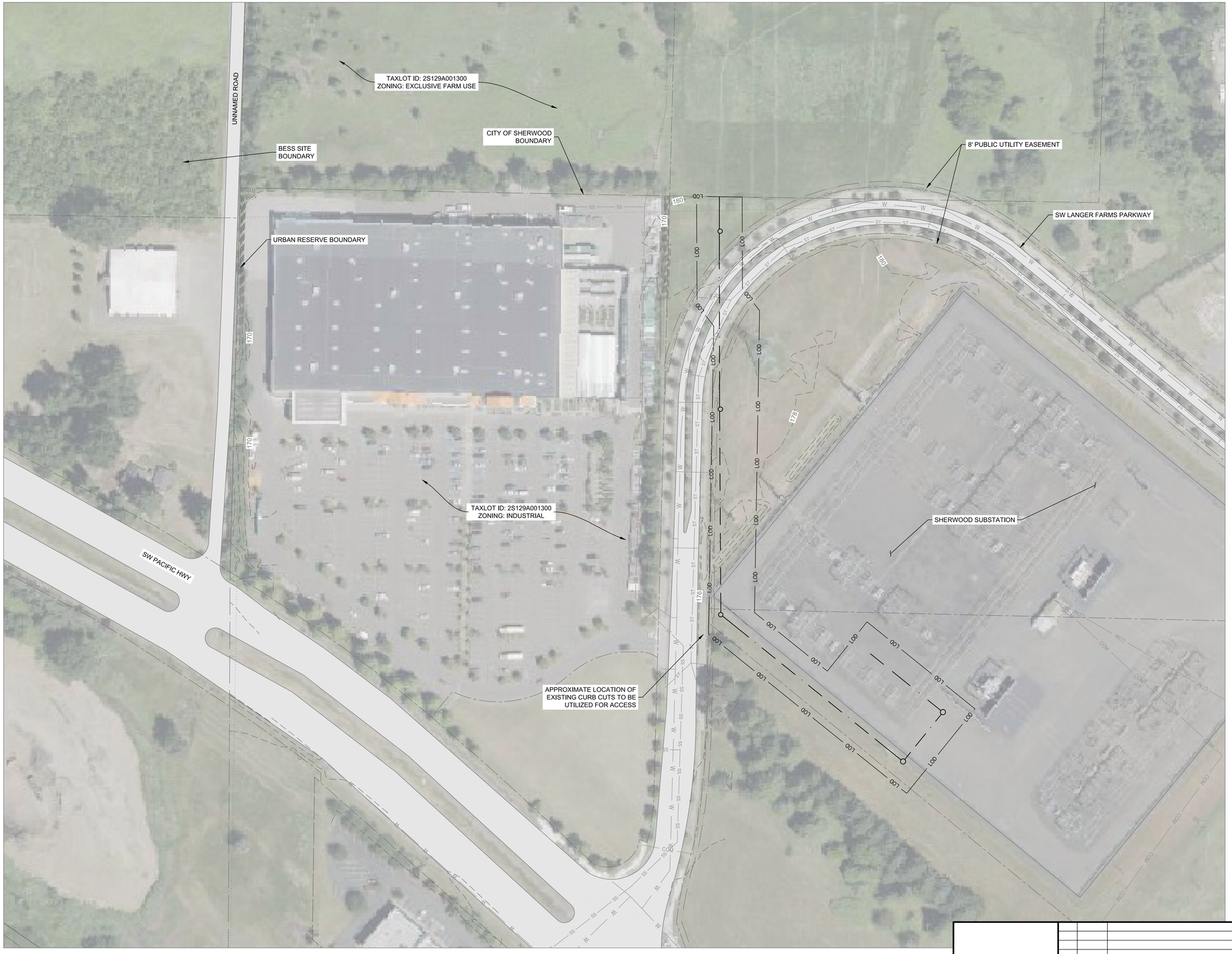
PGE UTILITY FACILITY REPLACEMENT AND INTERCONNECTION
BrightNight LLC
WASHINGTON COUNTY, OR

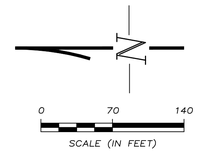
REV.: 0

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
AS NOTED	B. ROBINSON	0834897	2
DATE DRAWN: 8/24/2026	DRAWN BY: D. FOSS		

Environmental Resources Management

\\ucdocfs02\data\Houston\Team\DWAY\Civil\4-Drawings\0834897\0834897-GEN-TTE SITE PLANS.dwg EX PLAN, PRINTED ON 8/26/2026 BY Danielle Pass





LEGEND

- PARCEL BOUNDARY
- EXISTING EASEMENT
- URBAN RESERVE BOUNDARY
- SHERWOOD CITY LIMITS
- EXISTING ROAD
- FINAL CONTOUR (2')
- EXISTING COMMUNICATIONS UTILITY
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER UTILITY
- LIMITS OF DISTURBANCE
- GEN-TIE LINE
- UTILITY POLE

NOTES:

1. THE PROPOSED IMPROVEMENTS WITHIN THE CITY OF SHERWOOD LIMITS CONSIST OF A PORTION OF THE APPROXIMATELY 0.65-MILE 230-KV GEN-TIE TRANSMISSION LINE CONNECTING THE PROPOSED NOTTINGHAM BESS FACILITY TO PGE'S EXISTING SHERWOOD SUBSTATION.
2. THE PROPOSED WORK WITHIN THE CITY OF SHERWOOD LIMITS WILL RESULT IN A LIMITED INCREASE IN IMPERVIOUS SURFACE OF LESS THAN 1,000 SQUARE FEET. BASED ON THE PRELIMINARY DESIGN, NO STORMWATER QUALITY OR QUANTITY FACILITIES ARE PROPOSED WITHIN CITY LIMITS.
3. NO CHANGES TO EXISTING GRADE ARE BEING PROPOSED WITHIN CITY LIMITS.
4. THIS DRAWING IS PRELIMINARY AND NOT INTENDED AS FINAL CONSTRUCTION ISSUE. THE WORK SHOWN ON THIS PLAN IS FOR PERMIT ONLY.
5. ALL DISTURBED AREAS WITHIN THE CITY OF SHERWOOD LIMITS SHALL BE RESTORED FOLLOWING CONSTRUCTION IN ACCORDANCE WITH APPLICABLE PERMIT REQUIREMENTS.
6. NO REMOVAL OF EXISTING TREES IS PROPOSED WITHIN THE CITY OF SHERWOOD LIMITS. INVASIVE BLACKBERRY BUSHES MAY BE REMOVED, AS NEEDED, FOR CONSTRUCTION ACCESS.
7. THE PROPOSED GEN-TIE LINE CROSSES SW LANGER FARMS PARKWAY AS SHOWN ON THESE PLANS. NO MODIFICATIONS TO THE EXISTING ROADWAY ARE PROPOSED AS PART OF THIS CONDITIONAL USE PERMIT APPLICATION.
8. OTHER THAN THE PROPOSED GEN-TIE TRANSMISSION LINE AND ASSOCIATED APPURTENANCES, NO NEW UTILITIES ARE PROPOSED WITHIN THE CITY OF SHERWOOD LIMITS.
9. THE PROPOSED WORK DOES NOT INCLUDE OCCUPIED BUILDINGS AND DOES NOT CHANGE THE EXISTING LAND USE DESIGNATION OR UNDERLYING ZONING OF THE PROPERTY.
10. THE PROPOSED WORK WITHIN THE CITY OF SHERWOOD LIMITS IS LIMITED TO A PORTION OF THE OVERALL GEN-TIE TRANSMISSION LINE CONNECTION BETWEEN THE PROPOSED TUALATIN BESS FACILITY AND THE EXISTING PGE SHERWOOD SUBSTATION..

Developer/Applicant

Company	Tual bn, LLC.
Contact	Todd Ellwood
Address	515 N Flagler Drive, Suite P200 West Palm Beach FL 33401
Email Address	todd.ellwood@brightnightpower.com

Owner

Company	Portland General Electric

Plan Producer

Company	Environmental Resources Management, Inc.
Contact	Alex Conzemius
Address	1050 SW 6th Ave Ste. 1650 Portland OR 97204
Email Address	alex.conzemius@erm.com

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0	8/31/2026	ISSUED FOR REVIEW	DF	BR

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PRELIMINARY SITE PLAN

DISCIPLINE NO.

PGE UTILITY FACILITY REPLACEMENT AND INTERCONNECTION
BrightNight LLC
WASHINGTON COUNTY, OR

REV. 0

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
AS NOTED	B. ROBINSON	0834897	3
DATE DRAWN	DRAWN BY		
8/24/2026	D. FOSS		

Environmental Resources Management

\\vadocfs02\data\Houston\Team\DNRV\Civil\3-Drawings\0834897\0834897-GEN-TIE SITE PLANS.dwg PRELIM SITE PLAN, PRINTED ON 8/27/2026 BY Danielle Foss

GENERAL NOTES

1. EXISTING TOPOGRAPHY PRESENTED HEREIN HAS BEEN GENERATED FROM U.S. GEOLOGICAL SURVEY, NATIONAL GEOSPATIAL TECHNICAL OPERATIONS CENTER - 3D ELEVATION PROGRAM, 20240112, USGS NED 1/3 ARC-SECOND CONTOURS FOR VANCOUVER E, WASHINGTON 1 X 1 DEGREE (PUBLISHED 20240112),
2. THE COORDINATE SYSTEM IS NRS 2011 OREGON STATE PLANES, NORTH ZONE, INTERNATIONAL FOOT.
3. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RETURNED TO THE ORIGINAL CONDITION OR BETTER AS DETERMINED BY OWNER AND IN ACCORDANCE WITH THE APPLICABLE UTILITY SPECIFICATION, LOCAL AND/OR STATE REQUIREMENTS.
4. THE CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES, CONFLICTS, OR UNFORESEEN CONDITIONS BEFORE PROCEEDING WITH AFFECTED WORK.
5. EXISTING FEATURES SHOWN ARE BASED ON AVAILABLE RECORDS, PUBLIC DATA SOURCES, AND SURVEY INFORMATION AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS, MONUMENTS, UTILITIES, LANDSCAPING, AND ADJACENT PROPERTY NOT SPECIFICALLY SHOWN FOR REMOVAL. ANY DAMAGE CAUSED BY CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL MAINTAIN SAFE ACCESS TO ADJACENT PROPERTIES, PUBLIC WAYS, DRIVEWAYS, AND UTILITIES THROUGHOUT CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE OWNER AND CITY OF SHERWOOD.
8. THE CONTRACTOR SHALL CONTACT THE OREGON UTILITY NOTIFICATION CENTER PRIOR TO ANY EXCAVATION ACTIVITIES AND SHALL FIELD VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION.

EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL REQUIRED EROSION AND SEDIMENT CONTROL (ESC) MEASURES PRIOR TO COMMENCEMENT OF GRADING, CLEARING, EXCAVATION, OR OTHER LAND-DISTURBING ACTIVITIES. ESC MEASURES SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ACHIEVED.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DESIGNED, INSTALLED, INSPECTED, AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS, APPLICABLE PERMIT CONDITIONS, CLEAN WATER SERVICES (CWS) DESIGN AND CONSTRUCTION STANDARDS, THE CWS EROSION PREVENTION AND SEDIMENT CONTROL MANUAL, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.

3. DISTURBED SOILS SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF WORK IN AN AREA. STABILIZATION METHODS MAY INCLUDE SEEDING, MULCHING, EROSION CONTROL BLANKETS, MATTING, OR OTHER APPROVED MEASURES.

4. SEDIMENT TRACKING ONTO PUBLIC OR PRIVATE ROADWAYS SHALL NOT BE PERMITTED. ALL TRACKED SEDIMENT SHALL BE REMOVED BY SWEEPING OR OTHER APPROVED DRY CLEANING METHODS. WASHING SEDIMENT INTO STORM DRAINS, DITCHES, OR WATERCOURSES IS PROHIBITED.

5. SOIL, TOPSOIL, AND EXCAVATION STOCKPILES SHALL BE LOCATED WITHIN APPROVED CONSTRUCTION LIMITS AND PROTECTED WITH APPROPRIATE PERIMETER CONTROLS AND STABILIZATION MEASURES. STOCKPILES SHALL NOT BE LOCATED WITHIN WETLANDS, WATERCOURSES, FLOODPLAINS, OR REQUIRED BUFFER AREAS. NO LONG-TERM STOCKPILES ARE ANTICIPATED WITHIN THE CITY OF SHERWOOD.

6. DURING THE CWS WET-WEATHER SEASON (OCTOBER 1 THROUGH MAY 31), ALL REQUIRED WET-WEATHER EROSION PREVENTION MEASURES SHALL BE IMPLEMENTED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE CWS REQUIREMENTS.

7. CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES REGULARLY AND AFTER STORM EVENTS. DAMAGED OR INEFFECTIVE MEASURES SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

8. CONSTRUCTION MATERIALS, FUEL, CONCRETE WASHOUT, DRILLING FLUIDS, AND OTHER POTENTIAL POLLUTANTS SHALL BE STORED, HANDLED, AND CONTAINED TO PREVENT DISCHARGE TO THE STORMWATER SYSTEM, WETLANDS, DRAINAGEWAYS, OR SURFACE WATERS.

9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL STABILIZATION IS ESTABLISHED AND APPROVAL IS RECEIVED FROM THE APPLICABLE JURISDICTION, UNLESS OTHERWISE DIRECTED..

CITY OF SHERWOOD STANDARD NOTES

1. CONTRACTOR SHALL NOTIFY CITY OF SHERWOOD ENGINEERING DEPARTMENT TWO BUSINESS DAYS PRIOR TO COMMENCEMENT OF WORK. .
2. ALL CONSTRUCTION WORK AND MATERIALS SHALL CONFORM TO APPLICABLE CITY OF SHERWOOD STANDARDS CONSTRUCTION SPECIFICATIONS. CLEAN WATER SERVICES (CWS) DESIGN AND CONSTRUCTION STANDARDS. UNIFORM PLUMBING CODE (UPC) AND UNIFORM BUILDING CODE (UBC) CONTRACTOR SHALL HAVE ONE SET OF APPROVED PLANS AND CITY OF SHERWOOD STANDARD CONSTRUCTION SPECIFICATIONS ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
3. APPLICANT IS RESPONSIBLE FOR ALL COSTS OF CONSTRUCTION.
4. CITY OF SHERWOOD BUILDING DEPARTMENT PERMITS ARE REQUIRED FOR PRIVATELY MAINTAINED PLUMBING CONSTRUCTED OUTSIDE OF PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENT. ALL WORK APPROVED UNDER PLUMBING PERMITS SHALL BE PRIVATELY OWNED AND MAINTAINED.
5. ATTENTION EXCAVATORS: OREGON LAW REQUIRES CONTRACTORS TO FOLLOW RULES ADOPTED BY OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090.
6. ALL TRENCH LINES AND EXCAVATIONS SHALL BE PROPERLY SHORED AND BRACED ALL SHEETING SHORING, AND BRACING OF TRENCHES SHALL CONFORM TO OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION (OSHA) REGULATIONS.
7. CONTRACTOR IS TO FIELD VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
8. SITE EROSION CONTROL PLAN AND BMP'S MEETING CWS STANDARDS TO BE IN PLACE AND APPROVED PRIOR TO CONSTRUCTION.
9. A TEMPORARY USE PERMIT. SUBJECT TO SECTION 16.86 OF SHERWOOD MUNICIPAL CODE, IS REQUIRED PRIOR TO ANY USE OF AN ON-SITE CONSTRUCTION TRAILER. UNDER NO CIRCUMSTANCE SHALL THE TRAILER BE LOCATED IN THE PUBLIC RIGHT-OF-WAY.
10. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES BEFORE STARTING CONSTRUCTION. A COPY OF THE REQUIRED PERMITS AND ATTACHMENTS SHALL BE AT THE WORK SITE AND AVAILABLE DURING CONSTRUCTION.
11. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.
12. ANY INSPECTION OR CONSTRUCTION OBSERVATION BY THE CITY, COUNTRY, STATE, OR OTHER JURISDICTIONAL AGENCIES SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN COMPLIANCE WITH THE APPLICABLE CODES, REGULATIONS, CITY STANDARDS, AND PROJECT CONTRACT DOCUMENTS.
13. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING STRUCTURES AND UTILITIES NOT SHOWN TO BE REMOVED. CONTRACTOR SHALL REPLACE OR REPAIR ANY EXISTING STRUCTURES (SIDEWALKS, CURB, FENCE, STREET TREES, ETC.) DAMAGED DURING CONSTRUCTION, IN ACCORDANCE WITH CITY STANDARDS.
14. NO TRENCHES OR PITS WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT. ALL TRENCHES AND PITS SHALL BE COVERED WITH STEEL PLATES OR BACKFILLED AT NIGHT.
15. ALTERNATIONS OR VARIATIONS FROM THESE PLANS, EXCEPT MINOR FIELD ADJUSTMENTS NEEDED TO MEET EXISTING FIELD CONDITIONS. SHALL BE APPROVED BY THE STAMPING ENGINEER AND APPLICABLE REGULATORY AGENCY REPRESENTATIVE.
16. PRIVATE UTILITIES TO BE INSTALLED WITHIN CITY OF SHERWOOD RIGHT-OF-WAY THAT IS NOT SHOWN ON THE APPROVED CONSTRUCTION PLANS (POWER, TELECOMMUNICATIONS, GAS, IRRIGATION, ETC.) SHALL HAVE PLANS SUBMITTED FOR A RIGHT-OF-WAY PERMIT PRIOR TO CONSTRUCTION OF UTILITY. ANY PRIVATE OR FRANCHISE UTILITIES INSTALLED WITHOUT A RIGHT OF WAY PERMIT IS SUBJECT TO REMOVAL.
17. CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN AND ITS CONTINUED FUNCTIONING FOR THE PROTECTION OF CONSTRUCTION WORKERS VEHICLES, BICYCLISTS AND PEDESTRIANS. ALL TRAFFIC CONTROL DEVICES AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. APPROVAL OF THE TRAFFIC CONTROL PLAN BY THE CITY OF SHERWOOD DOES NOT ABROGATE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN A SAFE WORKZONE. THE CITY OF SHERWOOD BEARS NO LIABILITY FOR THE CONTRACTOR'S IMPLEMENTATION OF THIS TRAFFIC CONTROL PLAN.

UTILITY PROTECTION NOTES

1. THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE PLANS IS APPROXIMATE AND BASED UPON AVAILABLE RECORD INFORMATION. ACTUAL LOCATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR SHALL CONTACT THE OREGON UTILITY NOTIFICATION CENTER PRIOR TO ANY EXCAVATION ACTIVITIES AND SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS FOR UTILITY LOCATIONS.

3. THE CONTRACTOR SHALL EXERCISE CAUTION DURING EXCAVATION ACTIVITIES AND SHALL PROTECT EXISTING UTILITIES, FACILITIES, AND IMPROVEMENTS NOT SPECIFICALLY IDENTIFIED FOR REMOVAL.

4. ANY CONFLICTS BETWEEN PROPOSED IMPROVEMENTS AND EXISTING FACILITIES IDENTIFIED DURING CONSTRUCTION SHALL BE REPORTED TO THE OWNER AND ENGINEER PRIOR TO PROCEEDING WITH THE AFFECTED WORK.

RESTORATION/CLOSEOUT NOTES

1. TEMPORARY CONSTRUCTION FEATURES, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER TEMPORARY FACILITIES SHALL BE REMOVED FOLLOWING COMPLETION OF CONSTRUCTION UNLESS OTHERWISE REQUIRED TO REMAIN.

2. ALL AREAS DISTURBED BY CONSTRUCTION OUTSIDE THE LIMITS OF PERMANENT IMPROVEMENTS SHALL BE RESTORED TO CONDITIONS ACCEPTABLE TO THE CITY OF SHERWOOD, AFFECTED PROPERTY OWNERS, AND APPLICABLE JURISDICTIONAL AGENCIES.

3. FINAL SITE STABILIZATION SHALL BE COMPLETED IN ACCORDANCE WITH APPLICABLE CLEAN WATER SERVICES AND PERMIT REQUIREMENTS PRIOR TO PROJECT CLOSEOUT.

4. RECORD DRAWINGS SHALL DOCUMENT MATERIAL FIELD CHANGES TO CIVIL IMPROVEMENTS, UTILITIES, DRAINAGE FACILITIES, GRADING, AND OTHER PERMANENT SITE IMPROVEMENTS.

Developer/Applicant
Company Tual bn, LLC.
Contact Todd Ellwood
Address 515 N Flagler Drive, Suite P200 West Palm Beach FL 33401
Email Address todd.ellwood@brightnightpower.com

Owner
Company Portland General Electric

Plan Producer
Company Environmental Resources Management, Inc.
Contact Alex Conzemius
Address 1050 SW 6th Ave Ste. 1650 Portland OR 97204
Email Address alex.conzemius@erm.com

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Rev.	Date	Description	By	Chk
0	8/31/2026	ISSUED FOR REVIEW	DF	BR

ERM

GENERAL NOTES

DISCIPLINE NO.

PGE UTILITY FACILITY REPLACEMENT AND INTERCONNECTION
BrightNight LLC
WASHINGTON COUNTY, OR

REV. 0

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
AS NOTED	B. ROBINSON	0834897	1
DATE DRAWN 8/24/2026	DRAWN BY D. FOSS		

Environmental Resources Management

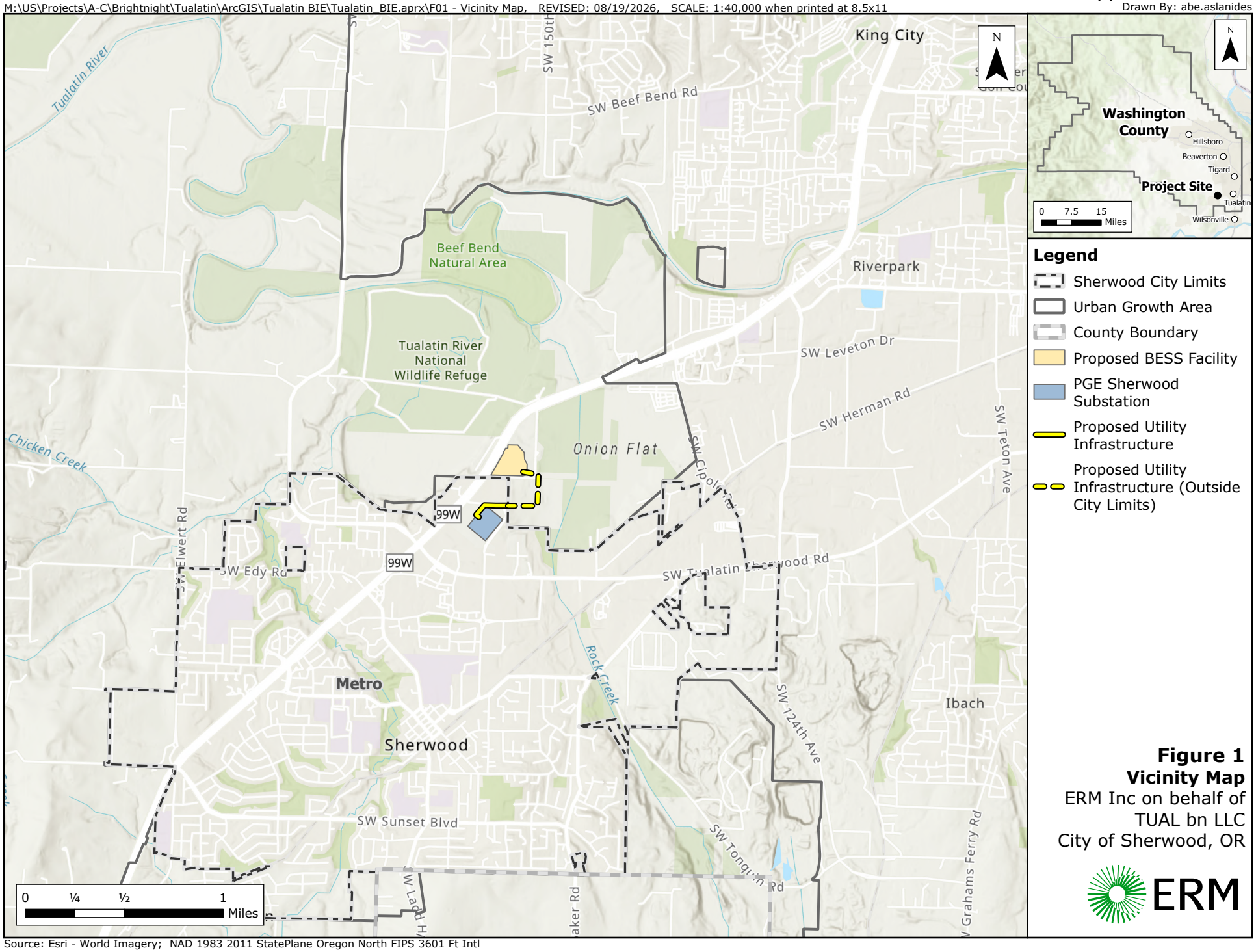
\\us0ocf402.data.nvo1.ann\Team\DWG\Clnt\A-D\BrightNight\0834897.0834897-GEN-TIE SITE PLANS.dwg NOTES, PRINTED ON 8/26/2026 BY Danielle Foss

VICINITY MAP

Appendix B

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin BIE\Tualatin_BIE.aprx\F01 - Vicinity Map, REVISED: 08/19/2026, SCALE: 1:40,000 when printed at 8.5x11

Drawn By: abe.aslanides



Legend

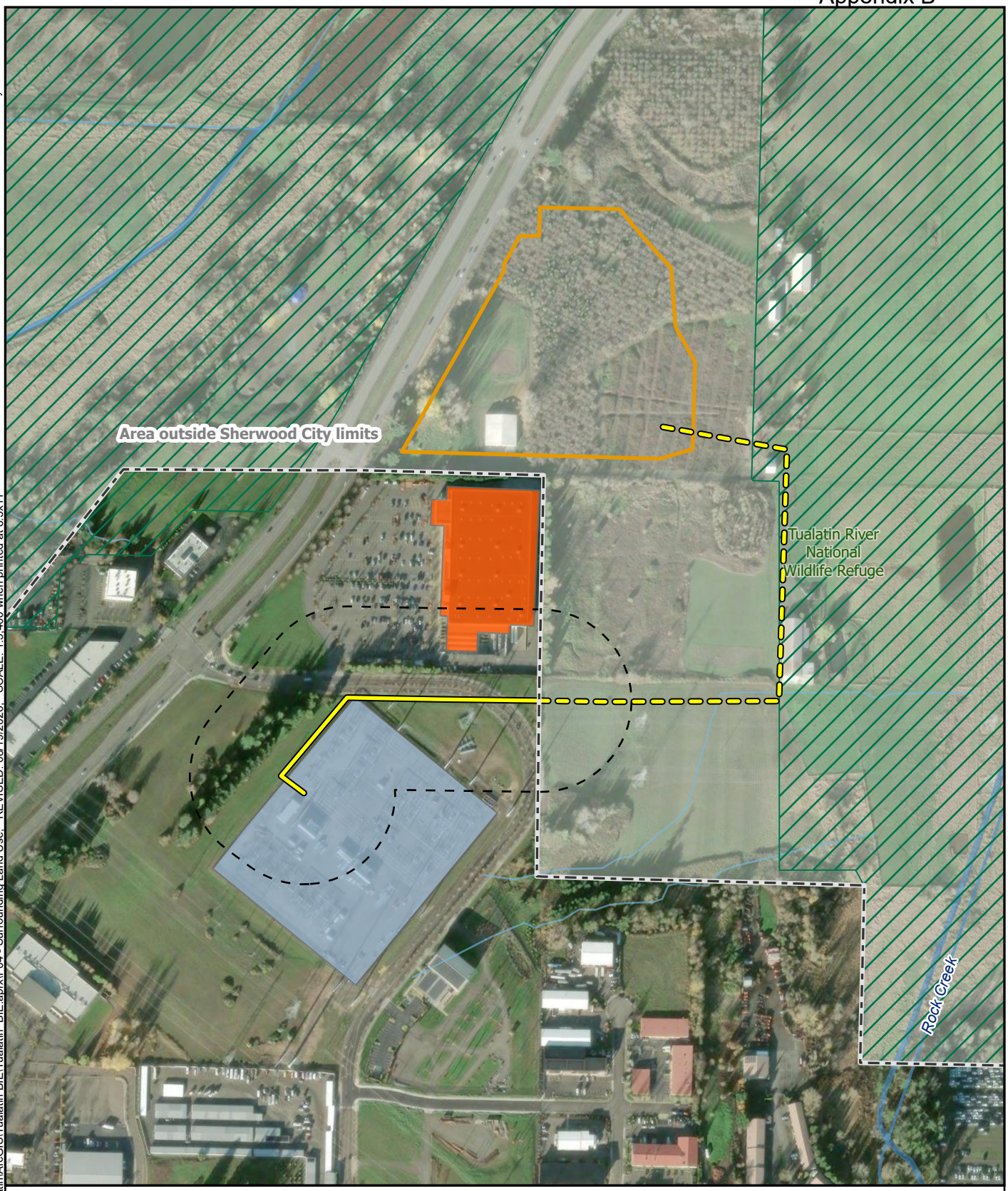
- Sherwood City Limits
- Urban Growth Area
- County Boundary
- Proposed BESS Facility
- PGE Sherwood Substation
- Proposed Utility Infrastructure
- Proposed Utility Infrastructure (Outside City Limits)

Figure 1
Vicinity Map
ERM Inc on behalf of
TUAL bn LLC
City of Sherwood, OR

ERM

Source: Esri - World Imagery; NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SURROUNDING LAND USE



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin BIE\Tualatin_BIE.aprx\F04 - Surrounding Land Use, REVISED: 08/19/2026, SCALE: 1:5,400 when printed at 8.5x11

Legend

- Sherwood City Limits
- Proposed Utility Infrastructure (Outside City Limits)
- 300' Analysis Area
- Proposed Utility Infrastructure
- PGE Sherwood Substation
- Proposed BESS Facility
- Tualatin River National Wildlife Refuge

Structures within 300'

- Commercial

N

0 125 250 500

Feet

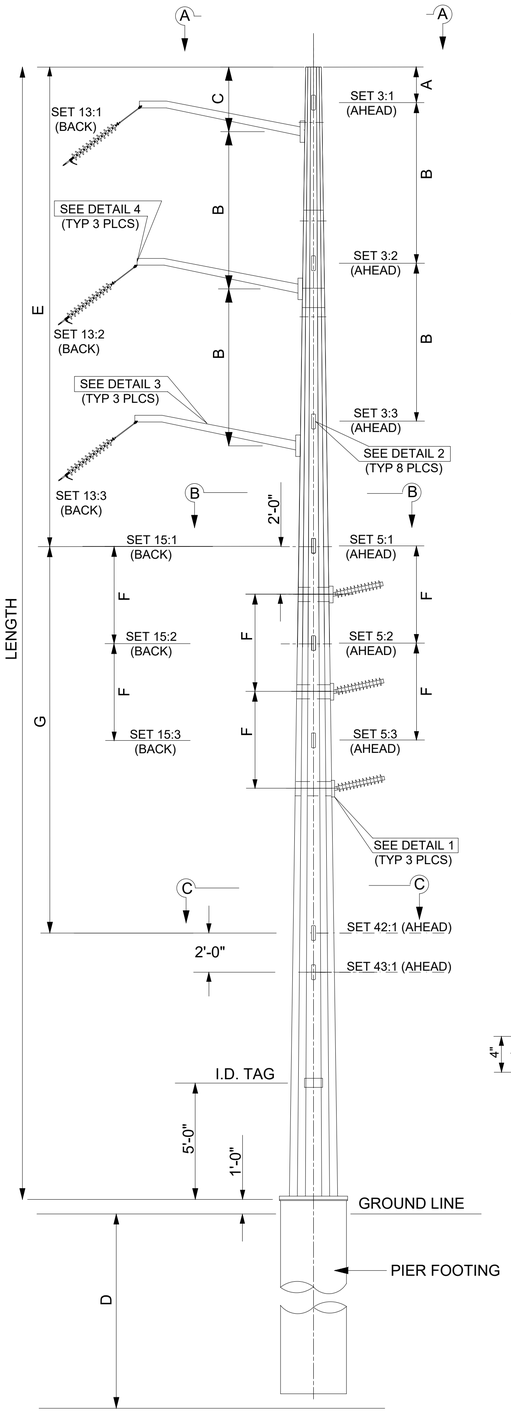
Figure 4
Surrounding Land Use
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Owner: Portland General Electric Company
Drafted: July 7, 2026

ARCHITECTURAL DRAWINGS

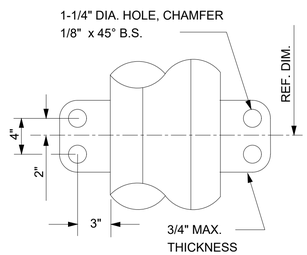


ELEVATION

NOTES:

SEE TABLE FOR NOTE APPLICATION

1. POLE SHALL BE DESIGNED TO WITHSTAND, WITHOUT FAILURE OR YIELDING. THE SIMULTANEOUS APPLICATION OF DEAD LOAD POLE WEIGHT, WIND LOAD ON POLE, AND WIRE LOADS FOR EACH OF THE LOAD CASES AS PRESENTED IN PLS-CADD FILES PROVIDED.
   STRUCTURE DESIGN SHALL MEET ALL REQUIREMENTS OF PGE TUBULAR STEEL POLE SPECIFICATION L22001.
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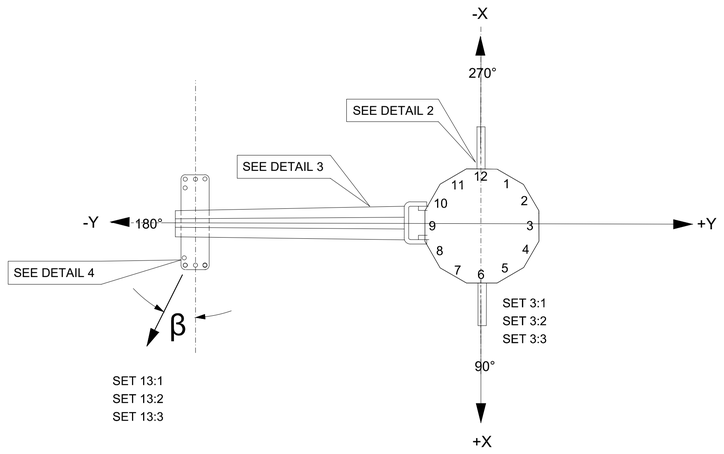
DETAIL 2
THRU VANG DETAIL

MFG.
MFG. ID.
DATE
LENGTH (SEE TABLE)
WT. (BY MFG.)
MAP # (SEE TABLE)
POLE # (SEE TABLE)

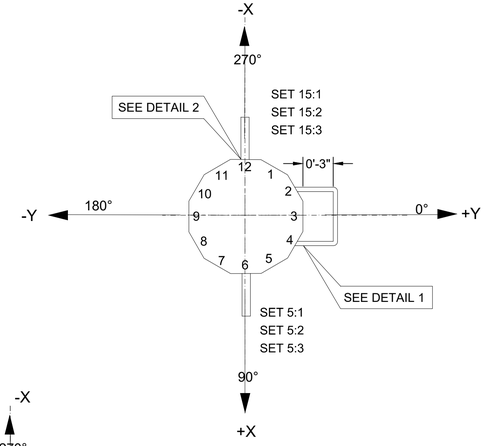
I.D. TAG INFORMATION

STRUCTURE SPECIFICATIONS

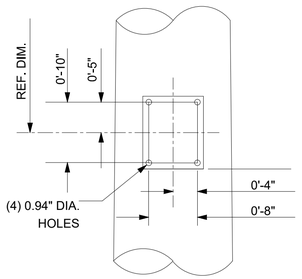
I.D. TAG INFORMATION				DIMENSIONS (ft-in)							(ANGLE)		NOTE APPLICATION										
MAP NO.	POLE NO.	LENGTH (ft.)	FACE NO.	A	B	C	D	E	F	G	β	ϕ	1	2	3	4	5	6	7	8	9	10	11	12
C2129A	1	120	6	1-0	14-0	3-0		53-0	8-0	37-0	22.8°		X	X	X		X	X	X	X	X	X	X	



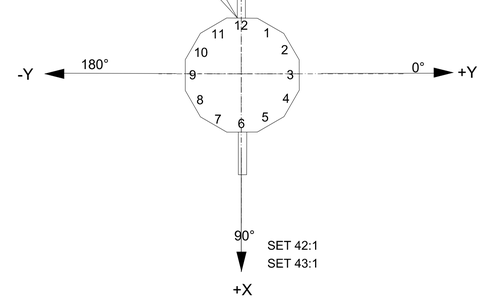
SECTION A-A
POLE ORIENTATION



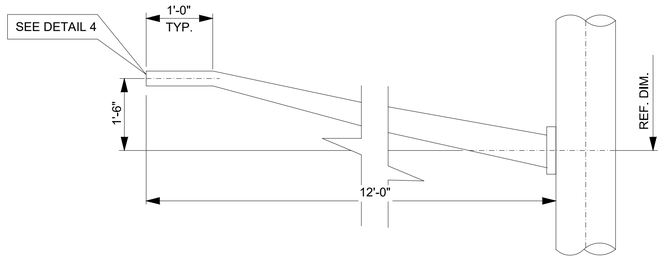
SECTION B-B
VANG ORIENTATION



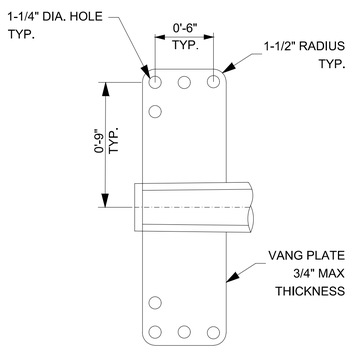
DETAIL 1
(TYP 3 PLCS)
POST JUMPER INSULATOR
MOUNTING DIMENSIONS



SECTION C-C
VANG ORIENTATION



DETAIL 3
(TYP 3 PLCS)
DAVIT ARMS



DETAIL 4
(TYP 3 PLCS)
DAVIT ARMS VANG DETAIL

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REVISIONS

REI TRANSMISSION LINE DRAWING

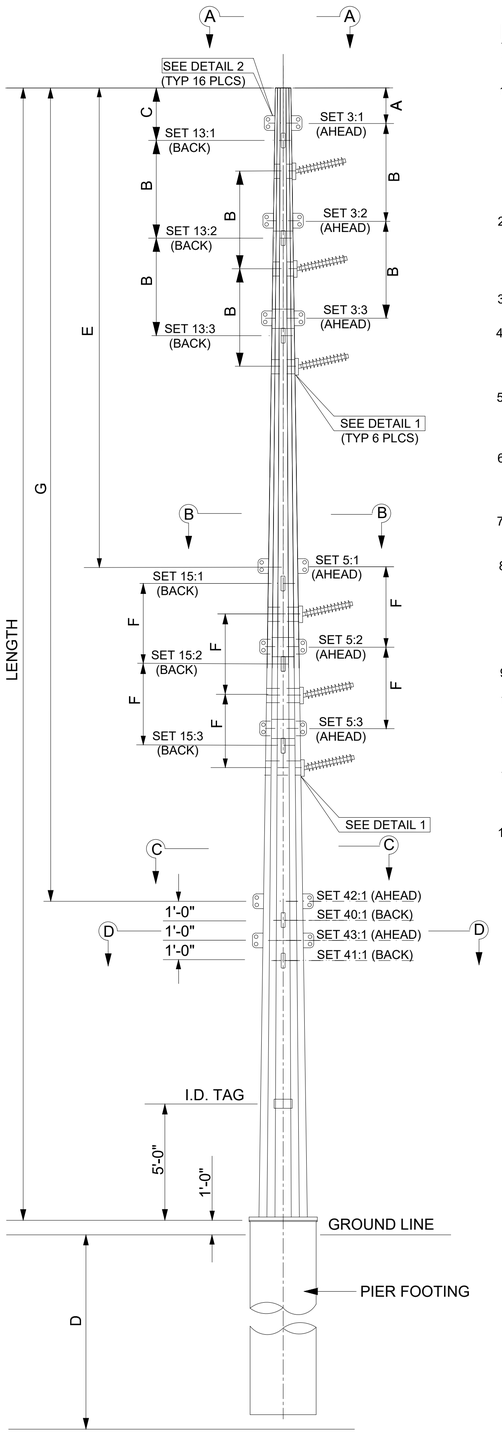
PGE

TITLE: STR-1001 STAMP
DATE: 02/17/2026
CIRCUIT: SHERWOOD-TUALATIN
SIZE: 22 X 34
LOCATION: SHERWOOD SUBSTATION
COUNTY: WASHINGTON
DESCRIPTION: STEEL POLES FOR 115KV 230KV TRANSMISSION LINE
SCALE: N.T.S
DESIGNER: CC
ACCOUNT:
AWO:
DESIGN PROJECT MANAGER:
PHONE:
MAP GRID(S): TBD
CONSTRUCTION PROJECT MANAGER:
PHONE:
WORK ORDER NUMBER (M#):
SHEET: 5 OF 32

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PORTLAND, OR 97202

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NOTES:

SEE TABLE FOR NOTE APPLICATION

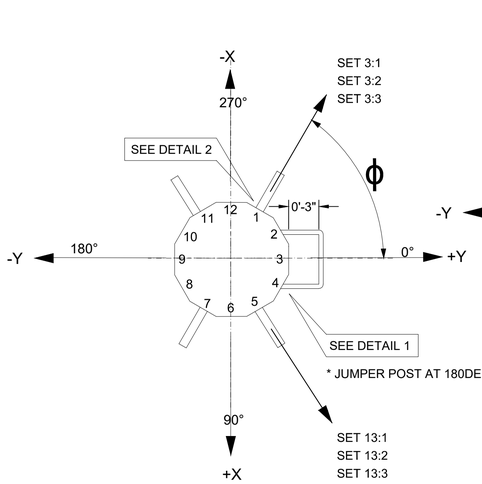
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MFG. ID.
DATE
LENGTH (SEE TABLE)
WT. (BY MFG.)
MAP # (SEE TABLE)
POLE # (SEE TABLE)

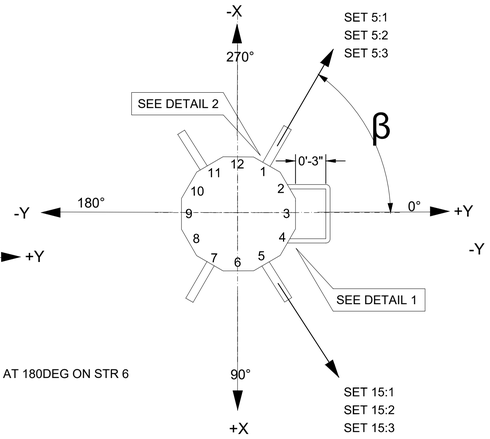
I.D. TAG INFORMATION

STRUCTURE SPECIFICATIONS

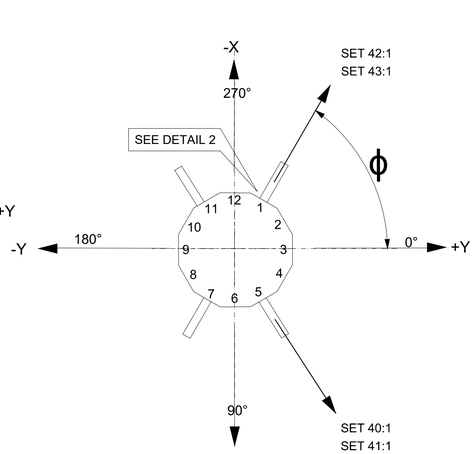
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C2129A	02	125	6	1-0	15-0	2-0		57-0	8-0	93-0	63.85°	63.85°	X	X	X		X	X	X	X	X	X	X	
C2129A	*06	140	6	1-0	15-0	2-0		57-0	8-0	93-0	90°	135°	X	X	X		X	X	X	X	X	X	X	



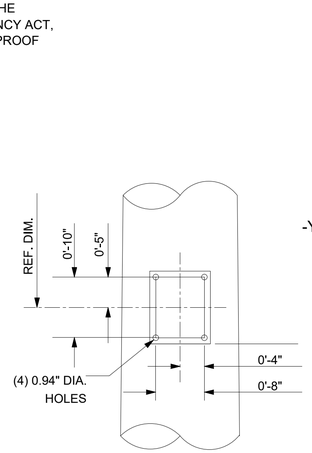
SECTION A-A
VANG ORIENTATION



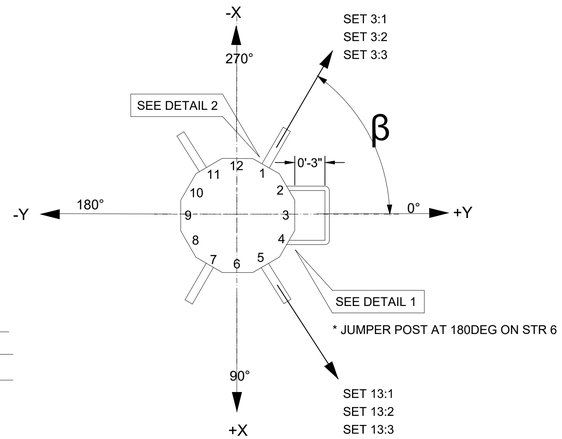
SECTION B-B
VANG ORIENTATION



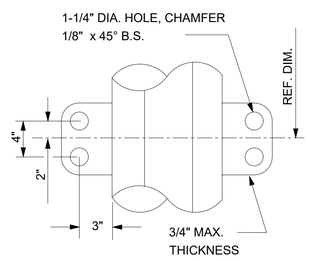
SECTION C-C
VANG ORIENTATION



DETAIL 1
(TYP 6 PLCS)
POST JUMPER INSULATOR
MOUNTING DIMENSIONS
POST JUMPER TO BE MOUNTED
ON POLE BISECTOR



SECTION D-D
VANG ORIENTATION



DETAIL 2
THRU VANG DETAIL

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REVISIONS

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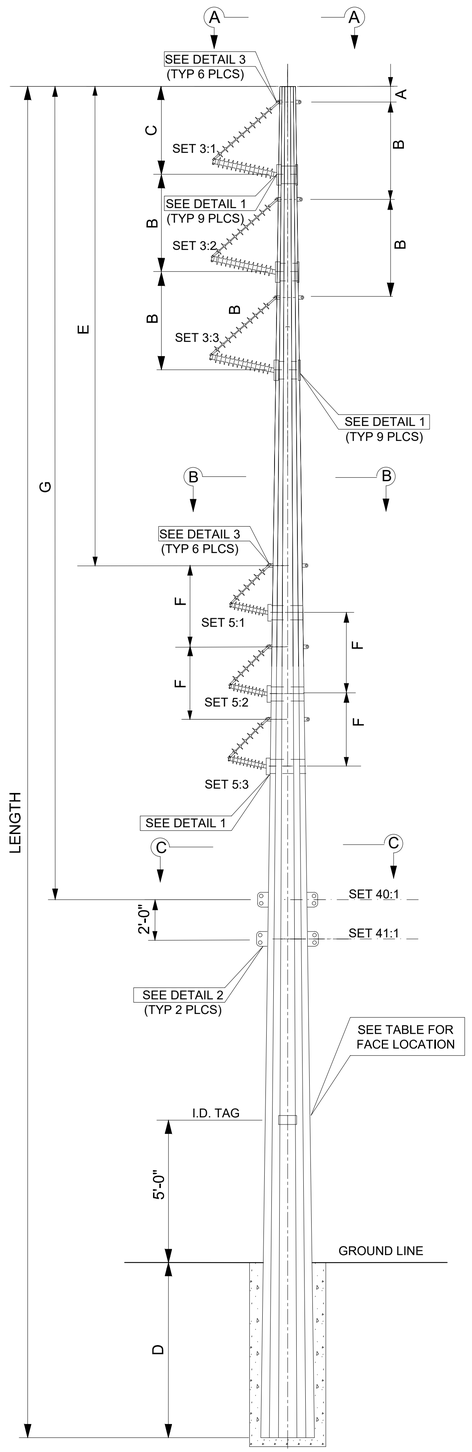
PGE

TITLE: STR-1002 STAMP
DATE: 02/17/2026
CIRCUIT: SHERWOOD-TUALATIN
SIZE: 22 X 34
LOCATION: SHERWOOD SUBSTATION
COUNTY: WASHINGTON
DESCRIPTION: STEEL POLES FOR 115KV 230KV TRANSMISSION LINE
SCALE: N.T.S
DESIGNER: CC
ACCOUNT:
AWO:
DESIGN PROJECT MANAGER: PHONE:
MAP GRID(S): TBD
CONSTRUCTION PROJECT MANAGER: PHONE:
WORK ORDER NUMBER (M#):
SHEET: 6 OF 32

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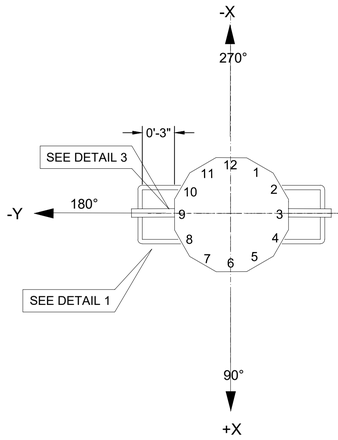
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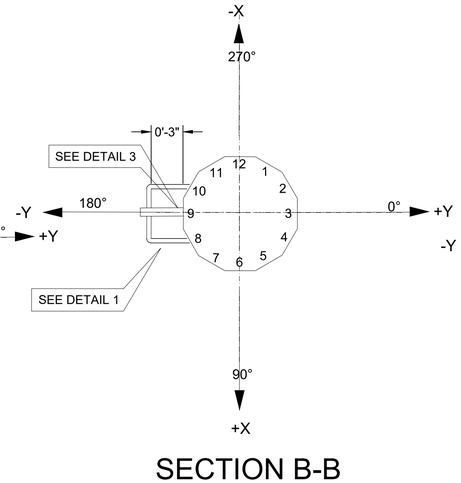
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STRUCTURE SPECIFICATIONS

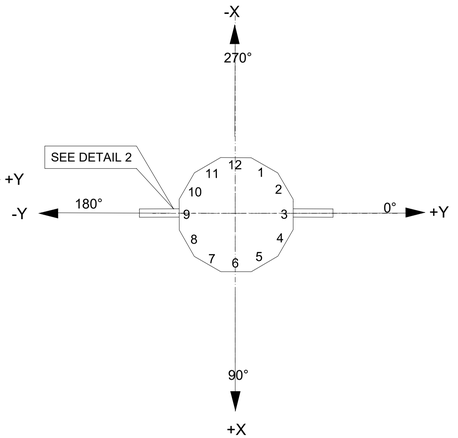
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C2129A	03	155	6	1-0	12-0	11-0	23-6	54-6	8-0	92-8			X	X	X	X	X	X	X		X	X	X	
C2129A	04	155	6	1-0	12-0	11-0	23-6	54-6	8-0	92-8			X	X	X	X	X	X	X		X	X	X	



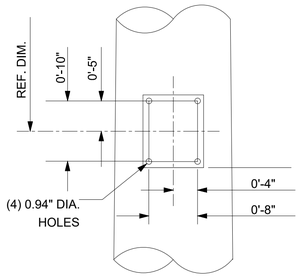
SECTION A-A
VANG ORIENTATION



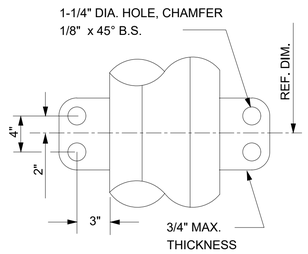
SECTION B-B
VANG ORIENTATION



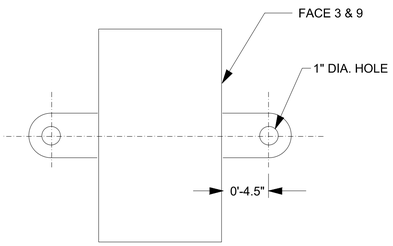
SECTION C-C
VANG ORIENTATION



DETAIL 1
POST JUMPER INSULATOR
MOUNTING DIMENSIONS
(TYP 9 PLCS)



DETAIL 2
THRU VANG DETAIL
(TYP 2 PLCS)



DETAIL 3
BRACE ATTACHMENT DEATAIL
(TYP 6 PLCS)

MFG.
MFG. ID.
DATE
LENGTH (SEE TABLE)
WT. (BY MFG.)
MAP # (SEE TABLE)
POLE # (SEE TABLE)

I.D. TAG INFORMATION

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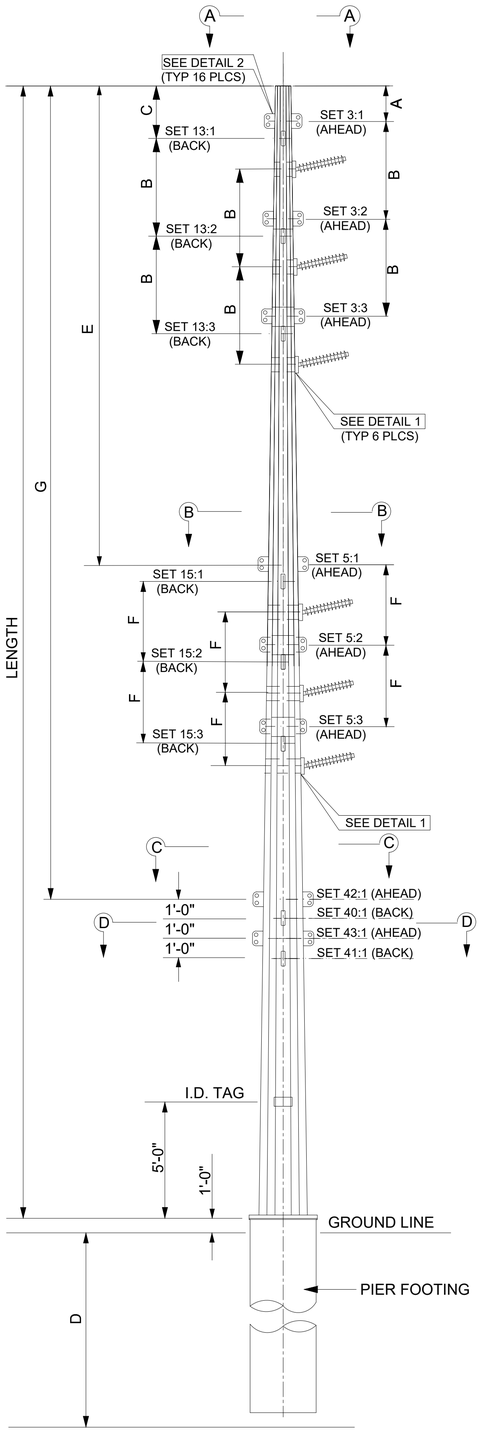
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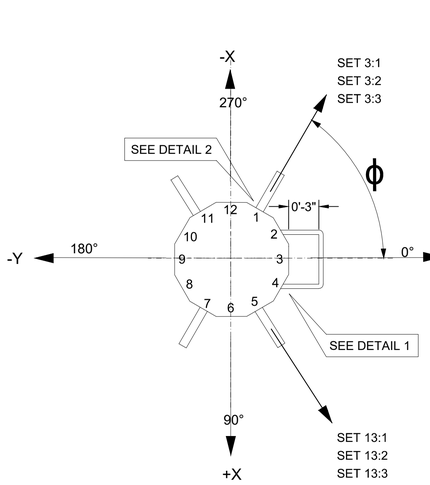
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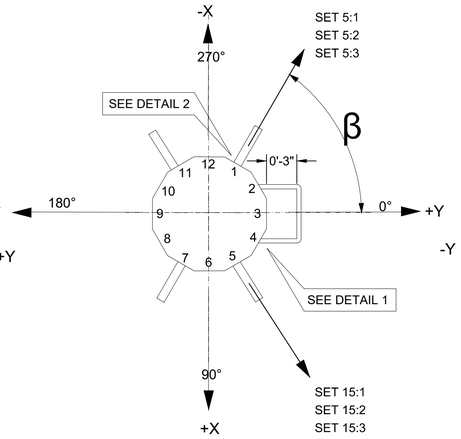
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3. GALVANIZED STEEL PER ASTM SPECIFICATION A-123.
4. EMBEDDED PORTION OF THE POLE PLUS 2'-0" TO BE COATED WITH CORROCATE II CLASSIC PAINT 215A AND 215B. 16 MILS THICK, OR APPROVED EQUIVALENT.
5. PROVIDE 1/2" GROUNDING LUG ONE FOOT ABOVE GROUNDLINE, ONE FOOT BELOW EACH INSULATOR ATTACHMENT POINT, AND ONE ON EACH SIDE OF ALL POLE JOINTS.
6. PROVIDE (5/8" MIN.) STEP BOLT NUTS. PLACE NUTS ON ONE SIDE OF POLE FROM GROUND LINE TO DISTRIBUTION DAVIT ARM THEN ON BOTH SIDES OF THE POLE TO TOP TRANSMISSION POSITION.
7. MANUFACTURER TO PROVIDE SUFFICIENT LIFTING VANGS TO FACILITATE ERECTION OF STRUCTURE.
8. ORIENTATION MARKING ON Y-AXIS. MANUFACTURER TO PROVIDE ORIENTATION MARKINGS ON ANCHOR BOLT CAGE, BASE PLATE, AND AT THE MATING LOCATION OF EACH SHAFT SECTION. ALL ORIENTATION MARKINGS TO ALIGN. ORIENTATION DETAIL SHOWING ANCHOR BOLTS AND STRUCTURE TO BE SHOWN ON DRAWINGS AS APPROPRIATE.
9. MOUNT I.D. TAG ON FACE NO. AS SPECIFIED IN TABLE.
10. ALL INSULATORS AND CROSSARMS ARE TO BE PROVIDED BY OTHERS. ALL DAVIT ARMS, INCLUDING ATTACHMENT HARDWARE, TO BE FURNISHED BY STEEL POLE MANUFACTURER AND INCLUDED IN QUOTE, AS APPROPRIATE.
11. MANUFACTURER TO PROVIDE PLS-POLE MODEL AS DELIVERABLE IN ADDITION TO CALCULATIONS AND DRAWINGS.
12. BUY AMERICA REQUIREMENTS: MATERIAL PROVIDED BY MANUFACTURER TO COMPLY WITH SECTION 635.410 OF TITLE 23, CODE OF FEDERAL REGULATIONS, AND THE INTERMODALSURFACE TRANSPORTATION EFFICIENCY ACT, WITHOUT WAIVER. MANUFACTURER TO PROVIDE PROOF OF ORIGIN FOR ALL MATERIAL SUPPLIED.

STRUCTURE SPECIFICATIONS

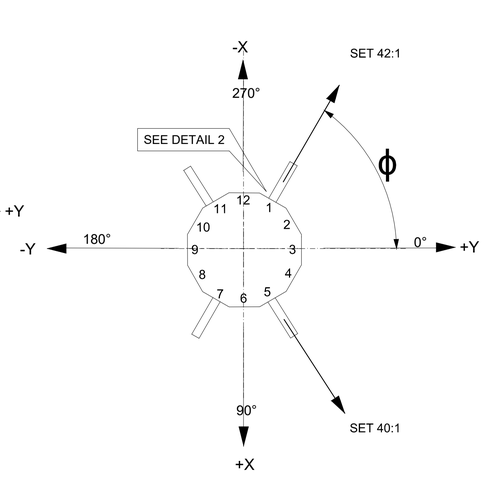
I.D. TAG INFORMATION				DIMENSIONS (ft-in)							(ANGLE)		NOTE APPLICATION										
MAP NO.	POLE NO.	LENGTH (ft.)	FACE NO.	A	B	C	D	E	F	G	β	ϕ	1	2	3	4	5	6	7	8	9	10	11	12
C2129A	05	140	6	1-0	15-0	2-0		57-0	8-0	93-0	60-0	90°	X	X	X		X	X	X	X	X	X	X	



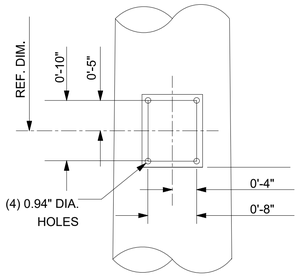
SECTION A-A
VANG ORIENTATION



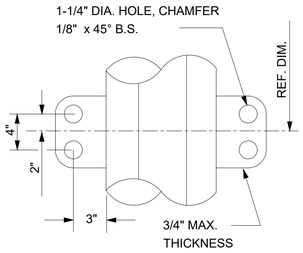
SECTION B-B
VANG ORIENTATION



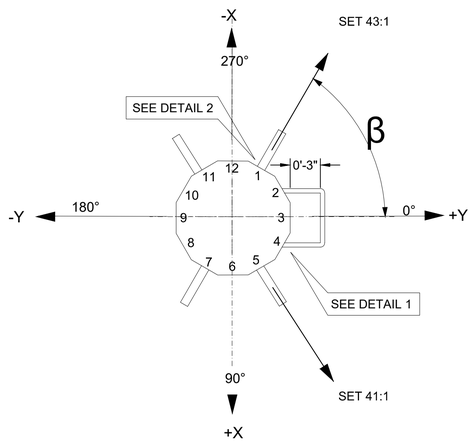
SECTION C-C
VANG ORIENTATION



DETAIL 1
POST JUMPER INSULATOR
MOUNTING DIMENSIONS
(TYP 6 PLCS)



DETAIL 2
THRU VANG DETAIL



SECTION D-D
VANG ORIENTATION

MFG.
MFG. ID.
DATE
LENGTH (SEE TABLE)
WT. (BY MFG.)
MAP # (SEE TABLE)
POLE # (SEE TABLE)

I.D. TAG INFORMATION

BLATTNER ENERGY

BRIGHTNIGHT

REVAMP ENGINEERING, INC.
428 13th St.
3rd Floor
Oakland, CA 94612
www.revamp-eng.com

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PRELIMINARY NOT FOR CONSTRUCTION

REV#	DATE	DESCRIPTION	DRN	DSGN	CKD	APPD
A	07/15/2026	60% DESIGN	CC	CC	TCM	TCM

REVISIONS

REI TRANSMISSION LINE DRAWING

PGE

TITLE: STR-1006 STAMP
DATE: 02/17/2026
CIRCUIT: SHERWOOD-TUALATIN
SIZE: 22 X 34
LOCATION: SHERWOOD SUBSTATION
COUNTY: WASHINGTON
DESCRIPTION: STEEL POLES FOR 115KV 230KV TRANSMISSION LINE
SCALE: N.T.S
DESIGNER: CC
ACCOUNT:
AWO:
PORTLAND LINE CREW CENTER
3700 SE 17TH AVE
PORTLAND, OR 97202
DESIGN PROJECT MANAGER: PHONE:
MAP GRID(S): TBD
CONSTRUCTION PROJECT MANAGER: PHONE:
WORK ORDER NUMBER (M#):
SHEET: 10 OF 32

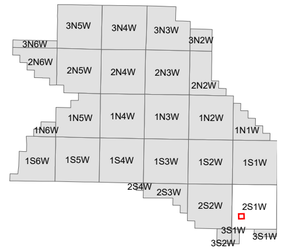
© PORTLAND GENERAL ELECTRIC CO. - ALL RIGHTS RESERVED

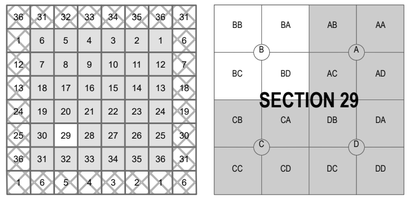
PGE Internal Use
Access Limited to PGE

TAX MAPS

Appendix B 2S129B

WASHINGTON COUNTY OREGON
NW 1/4 SECTION 29 T2S R1W
SCALE 1"= 200'





FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.washingtoncountyor.gov/gis

- Plat Lot Corner
- Adjusted Lot Corner
- Lot Corner in Road
- Urban Land Hook
- Initial Point of Plat
- Approximate DLC Corner
- Found DLC Corner
- Stationing
- Taxlot Line
- Old Lot Line
- Plat Boundary
- Easement ROW
- Easement Centerline
- Condo Unit Boundary
- Public Road Centerline
- Railroad Centerline
- Stream
- Donation Land Claim
- Tax Code Line
- 15-12 Tax Code
- Approximate Section Corner
- Found Section Corner

Cancelled Taxlots For: 2S129B
101, 808, 1200, 100, 800, 300, 1000, 1300, 700, 1600, 103C1, 1700

Feet
0 100 200 400 600

Assessment CARTOGRAPHY Taxation

PLOT DATE: 6/16/2025
Rotation: 0

FOR ASSESSMENT PURPOSES ONLY - DO NOT RELY ON FOR OTHER USE

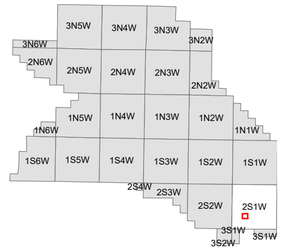
Map areas delineated by either gray shading or a cross-hatched pattern are for reference only and may not indicate the most current property boundaries. Please consult the appropriate map for the most current information.

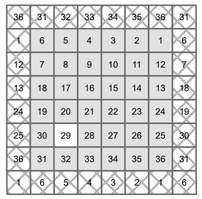
Digmap

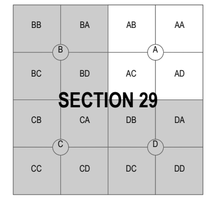
SHERWOOD
2S129B

Appendix B 2S129A

WASHINGTON COUNTY OREGON
NE 1/4 SECTION 29 T2S R1W
SCALE 1"= 200'







FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.washingtoncountyor.gov/gis

- Plat Lot Corner
- Adjusted Lot Corner
- Lot Corner in Road
- Urban Land Hook
- Initial Point of Plat
- Approximate DLC Corner
- Found DLC Corner
- Stationing
- Taxlot Line
- Old Lot Line
- Plat Boundary
- Easement ROW
- Easement Centerline
- Condo Unit Boundary
- Public Road Centerline
- Railroad Centerline
- Stream
- Donation Land Claim
- Tax Code Line
- 15-12 Tax Code
- Approximate Section Corner
- Found Section Corner

Cancelled Taxlots For: 2S129A
401, 103, 200, 900, 1000, 800, 1200, 690, 700, 102, 1600, 170, 1300, 1401

Feet
0 100 200 400 600

Assessment CARTOGRAPHY Taxation

PLOT DATE: 6/16/2025
Rotation: 0

FOR ASSESSMENT PURPOSES ONLY - DO NOT RELY ON FOR OTHER USE

Map areas delineated by either gray shading or a cross-hatched pattern are for reference only and may not indicate the most current property boundaries. Please consult the appropriate map for the most current information.

Digmap

SHERWOOD
2S129A

APPENDIX C TITLE REPORT AND DEED

PRELIMINARY TITLE REPORT
Supplemental No.: 2

Date: June 26, 2026
Effective Date: June 18, 2026

Escrow Officer
Phone:
Email:
Title Officer Mark Davison
Phone: 503-298-8637
Email: Mark.Davison@stewart.com

File No.: 2481610
Your Escrow Number:
Customer Reference: 24000372359
Loan Number:

Property Address XXX R2183329, R2118351, R2118352, R2118355, Sherwood, OR 97140

PRIOR REPORT DATED 3/5/2025 IS SUPPLEMENTED FOR THE FOLLOWING:

Effective Date Changed
Amended Legal Description
Added Exception Nos, 44 - 49

		Liability	Premium
2021 ALTA® Owner's Policy Standard	(Underwriting fee - 11%)	**To Be Determined**	**$0.00**
Proposed Insured: Tualatin Solar			
Endorsement: OTIRO 110 - No Charge			
2006 ALTA® Loan Policy Extended	(Underwriting Fee 11%)	**To Be Determined**	**$0.00**
Proposed Insured: To Be Determined			

Stewart Title Company is prepared to issue on request and on recording of the appropriate documents, a policy or policies of Stewart Title Guaranty Company as applied for, with coverages as indicated, based on this preliminary report.

The estate or interest in the land described or referred to in this Preliminary Report is:

FEE SIMPLE

Title to the said estate or interest in the land is at the Effective Date vested in:

Portland General Electric Company, an Oregon corporation

Subject only to the exceptions shown herein and to the terms, conditions and stipulations contained in the policy form. No liability is assumed until a full premium has been paid and a policy issued.

LEGAL DESCRIPTION: SEE EXHIBIT "A" ATTACHED HERETO

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL 1:

A tract of land in a portion of Parcel 1 and Parcel 2, as shown on Partition Plat No. 1999-085, Washington County survey records, situate in the north half of Section 29, Township 2 South, Range 1 West, Willamette Meridian, City of Sherwood, Washington County, Oregon more particularly described as follows:

Beginning at a 5/8-inch iron rod with a yellow plastic cap stamped "PGE" on the east line of Parcel 2 of Washington County Partition Plat No. 1999-085 where said east line intersects the northerly line of a 250-foot-wide Bonneville Power Administration transmission line easement, per Book 433, Page 303 and Book 445, Page 361; thence along said northerly line North 50°35'53" West 682.55 feet to a point that bears South 8838'18" East 51.19 feet from the easterly right-of-way of SW Langer Farms Parkway; thence North 88°38'18" West 51.19 feet to said easterly right-of-way;

Thence along said easterly right-of-way of SW Langer Farms Parkway the following five (5) courses:

1) North 01°21'42" East 102.86 to a tangent curve to the right;
2) thence 240.56 feet along a tangent curve to the right, having a radius of 362.00 feet, the chord of which bears North 20°23'57" East 236.16 feet;
3) thence North 39°26'12" East 704.56 feet to a tangent curve to the left;
4) thence 709.73 feet along a tangent curve to the left, having a radius of 338.00 feet, the chord of which bears North 20°43'04" West 586.34 feet;
5) thence North 09°07'41" East 5.18 feet to the south line of Parcel 1 of Washington County Plat No. 2002-027;

Thence along said south line South S8°28'24" East 1714.94 feet and the extension thereof; thence South 01°19'07" West 660.00 feet; thence North 88°28'24" West 1419.00 feet to a 5/8-inch iron rod with yellow plastic cap stamped "AKS ENGR." marking the northwest corner of the Sherwood Commercial Center per Washington County Doc. No. 2007-023715; thence along the west line of said Sherwood Commercial Center South 01°20'17" West 1188.96 to the Point of Beginning.

Excepting therefrom any portion within SW Arrow Street, as described in Washington County dedication deed document number 2020-081751.

Together with the remaining portion of Parcel 1 of Washington County Partition Plat No. 2003-025, lying westerly and southerly of the westerly and southerly right-of-way of SW Langer Farms Parkway as shown in survey number 32290, Washington County Survey Records, as described in Washington County dedication deed document number 2011-052221.

Bearings are based on a local datum plane scaled from Oregon State Plane North 3601, NAD83(2011) Epoch 2010, by holding a project mean ground combined scale factor of 1.000104 at control point number 1, a 1-inch copper disk, stamped "PGE Control" set in the easterly sidewalk of SW Langer Farms Parkway 343 feet North-Northeast of the northwest corner of tax lot 1100 with grid values of North 629747.751', East 7601893.535'. The meridian convergence angle at the calculated central point is - 1°39'23.7".

PARCEL 2:

Parcel 2 of Partition Plat No. 2003-025, recorded under Fee No. 2003-055490, records of Washington County, Oregon.

MAP

THE MAP CONNECTED HEREWITH IS BEING PROVIDED AS A COURTESY AND FOR INFORMATIONAL PURPOSES ONLY; THIS MAP SHOULD NOT BE RELIED UPON. FURTHERMORE, THE PARCELS SET OUT ON THIS MAP MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES. STEWART ASSUMES NO LIABILITY, RESPONSIBILITY OR INDEMNIFICATION RELATED TO THE MAPS NOR ANY MATTERS CONCERNING THE CONTENTS OF OR ACCURACY OF THE MAP.

EXHIBIT “A”
LEGAL DESCRIPTION

GENERAL EXCEPTIONS

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.

3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

4. Any encroachment (of existing improvements located on the subject Land onto adjoining Land or of existing improvements located on adjoining Land onto the subject Land) encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the subject Land.

5. Any lien or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the Public Records.

6. Minerals of whatsoever kind, subsurface and surface substances, including but not limited to coal, lignite, oil, gas, uranium, clay, rock, sand and gravel in, on, under and that may be produced from the Land, together with all rights, privileges, and immunities relating thereto, whether or not appearing in the Public Records or listed in Schedule B. The Company makes no representation as to the present ownership of any such interests. There may be leases, grants, exceptions or reservations of interests that are not listed.

SPECIAL EXCEPTIONS

7. Taxes, including the current fiscal year, not assessed because of Centrally Assessed Property (DOR) Exemption. If the exempt status is terminated an additional tax may be levied. Account No. R2183329
(Affects a portion of Parcel 1)

8. Taxes, including the current fiscal year, not assessed because of Centrally Assessed Property (DOR) Exemption. If the exempt status is terminated an additional tax may be levied. Account No. R2118351
(Affects a portion of Parcel 1 - Code Split)

9. Taxes, including the current fiscal year, not assessed because of Centrally Assessed Property (DOR) Exemption. If the exempt status is terminated an additional tax may be levied. Account No. R2118352
(Affects a portion of Parcel 1)

10. Taxes, including the current fiscal year, not assessed because of Centrally Assessed Property (DOR) Exemption. If the exempt status is terminated an additional tax may be levied. Account No. R2118355
(Affects Parcel 2)

11. Current and/or advance personal property taxes for 2024 may become due upon transfer or sale of the premises herein described. Please contact the Washington County Treasurer's office for further information.

12. City liens, if any of the City of Sherwood. No inquiry has been made.

13. The herein described premises are within the boundaries of and subject to the statutory powers, including the power of assessment of Clean Water Services.

14. According to the record, the subject property appears to lie within the boundaries of the Sherwood Urban Renewal/Neighborhood Development District of the City of Sherwood.

15. Reservation and the terms and conditions thereof recorded under Book 360, page 234.

16. Easement and the terms and conditions thereof recorded under Book 416, page 170.

17. Easement granted to United States of America, as more fully set forth in the document recorded as Book 433, page 303.

18. Easement granted to United States of America, as more fully set forth in the document recorded as Instrument No. Book 445, page 361.

19. Grant of Access and the terms and conditions thereof recorded under Book 599, page 320.

20. Notice of Flood Plain District Alteration Permit and the terms and conditions thereof recorded under Instrument No. 82008633.

21. Waiver Right of Remonstrance Against Customarily (commonly) Accepted Farm or Forestry Practices and the terms and conditions thereof recorded under Instrument No. 98048905.

22. Restrictive Covenant Waiving Right of Remonstrate Regarding Road Improvement/Maintenance and the terms and conditions thereof recorded under Instrument No. 98048906.

23. Easement granted to Clean Water Services, as more fully set forth in the document recorded as Instrument No. 2015-093692. (Affects Parcel 1)

24. Easement granted to City of Sherwood, as more fully set forth in the document recorded as Instrument No. 2020-081748. (Affects Parcel 1)

25. Easement granted to City of Sherwood, as more fully set forth in the document recorded as Instrument No. 2020-081750. (Affects Parcel 1)

26. Easement granted to City of Sherwood, as more fully set forth in the document recorded as Instrument No. 2020-081751. (Affects Parcel 1)

27. Easement granted to City of Sherwood, as more fully set forth in the document recorded as Instrument No. 2021-128031. (Affects Parcel 1)

28. Easement granted to City of Sherwood, as more fully set forth in the document recorded as Instrument No. 2021-128080. (Affects Parcel 1)

29. Partition Plat No. 1999-0085 and the terms and conditions thereof recorded under Instrument No. 99106600. (Affects Parcels 1 and 2)

30. Road Access Easement and the terms and conditions thereof recorded under Instrument No. 2000067342. (Affects Parcel 1)

    And re-recorded under Fee No. 2001087198.

31. Sewer Easement and the terms and conditions thereof recorded under Instrument No. 2000067343. (Affects Parcel 1)

32. Partition Plat No. 2001-048 and the terms and conditions thereof recorded under Instrument No. 2001063004. (Affects Parcels 1 and 2)

33. Road Access Easement and the terms and conditions thereof recorded under Instrument No. 2001003415. (Affects Parcel 2)

34. Access Road Easement and the terms and conditions thereof recorded under Instrument No. 2001028854. (Affects Parcel 1)

35. Partition Plat No. 2003-025 and the terms and conditions thereof recorded under Instrument No. 2003055490. (Affects Parcels 1 and 2)

36. The attached Commercial Title Affidavit must be completed in full, notarized and submitted to the Company for review prior to closing.

37. Owner's policy coverage to be verified through written instructions or a complete copy of the purchase and sale agreement should be submitted.

38. Evidence of the corporate existence of Portland General Electric Company, an Oregon corporation must be submitted, together with evidence of the identity and authority of the officers thereof to execute the forthcoming instruments.

39. Unrecorded leaseholds, rights of parties in possession, and security interests in trade fixtures, personal property, or unattached improvements, if any.

40. No search has been made for Financing Statements filed in the office of the Secretary of State. Exception may be taken to such matters as may be shown thereby.

41. Parties in possession, or claiming to be in possession, other than the vestees shown herein. For purpose of ALTA Extended coverage, we will require an Affidavit of Possession be completed and returned to us. Exception may be taken to such matters as may be shown thereby.

42. Statutory liens for labor or materials, including liens for contributions due to the State of Oregon for unemployment compensation and for workmen's compensation, which have now gained or hereafter may gain priority over the lien of the insured mortgage where no notice of such liens appear of record.

43. Easement granted to City of Sherwood as more fully set forth in the document recorded as Instrument No. 2011-052221.

44. 2026-2027 taxes, a lien not yet payable.

45. Taxes, including the current fiscal year, not assessed because of Centrally Assessed Property (DOR) Exemption. If the exempt status is terminated an additional tax may be levied. Account No. R2218620
(Affects a portion of Parcel 1)

46. Easement granted to the City of Sherwood, a political subdivision of the State of Oregon, as more fully set forth in the document recorded July 29, 2011 as Instrument No. 2011-052219.

47. Easement granted to the City of Sherwood, a political subdivision of the State of Oregon, as more fully set forth in the document recorded July 29, 2011 as Instrument No. 2011-052220.

48. Private Stormwater Facility Access & Maintenance Covenant and the terms and conditions thereof recorded May 27, 2021 under Instrument No. 2021-062449.

49. Matters as disclosed by Survey No. 34181, dated October 28, 2021.

END OF EXCEPTIONS

NOTES:

NOTE (a): We find no judgments or Federal Tax Liens against Portland General Electric Company, an Oregon corporation and Tualatin Solar.

NOTE (b): We do not find any Deeds of record on the subject property recorded within the last 24 months. Title to the estate or interest shown in Schedule A was acquired by Warranty Deed dated May 11, 1966 and recorded May 11, 1966 as Book 600, page 54 and by Property Line Adjustment Deed dated September 17, 2021 and recorded September 21, 2021 as Instrument No. 2021-100942, re-recorded April 10, 2025 as Instrument No. 2025-015386.

CHAIN OF TITLE DOCUMENTS

Type of Document: Warranty Deed
Recorded: May 11, 1966
Recording No.: Book 600, page 54
First Party: William Oldenburg and Edna Oldenburg, husband and wife
Second Party: Portland General Electric Company, an Oregon corporation

Type of Document: Deed
Recorded: April 15, 1944
Recording No.: Book 229, Page 425
First Party: Chester G. Hall et al
Second Party: William Oldenburg and Edna Oldenburg, husband and wife

Type of Document: Deed
Recorded: November 29, 1919
Recording No.:Book 116, Page 39
First Party: August and Eva Fischbuch
Second Party: Chester G. Hall et al

Type of Document: Deed
Recorded: November 29, 1919
Recording No.:Book 116, Page 38
First Party: Carl W. Fischbuch
Second Party: Chester G. Hall et al

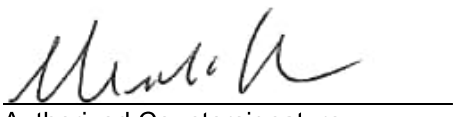
Type of Document: Deed
Recorded: November 29, 1919
Recording No.:Book 116, Page 37
First Party: George G. Fischbuch
Second Party: Chester G. Hall et al

Type of Document: Deed
Recorded: January 24, 1903
Recording No.:Book 62, Page 438
First Party: Gustav V. Hauke
Second Party: Gottleib Fischbuch

Type of Document: Deed
Recorded: unknown
Recording No.:Book 42, Page 203
First Party: Edgar Poppleton
Second Party: Gustav V. Hauke

NOTE: Any map or sketch enclosed as an attachment herewith is furnished for information purposes only to assist in property location with reference to streets and other parcels. No representation is made as to accuracy and the company assumes no liability for any loss occurring by reliance thereon.

After the issuance of a preliminary title report, if a transaction is consummated in reliance thereon, but without requiring the issuance of the title policy applied for, the full scheduled charge applicable to the type of coverage normally issued on such transactions will apply.



Authorized Countersignature
Matt London

Senior Division President

If you have any questions regarding this report or your escrow, please contact your Escrow Officer Phone: Fax: .

ESCROW OFFICER LOCATION:

TITLE OFFICE LOCATION:

Stewart Title Company
1000 SW Broadway, Suite 2460
Portland, OR 97205

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The types of personal information Stewart collects, and shares depends on the product or service you have requested.

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1. Identifiers: Real name, alias, online IP address if accessing company websites, email address, account name, unique online identifier, or other similar identifiers.

2. Demographic Information: Marital status, gender, date of birth.

3. Personal Information and Personal Financial Information: Full name, signature, social security number, address, driver's license number, passport number, telephone number, insurance policy number, education, employment, employment history, bank account number, credit card number, debit card number, credit reports, or any other information necessary to complete the transaction.

Stewart may collect personal information about you from:

1. Publicly available information from government records.
2. Information we receive directly from you or your agent(s), such as your lender or real estate broker.
3. Information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Stewart may use your personal information for the following purposes:

1. To provide products and services to you in connection with a transaction.
2. To improve our products and services.
3. To communicate with you about our affiliates', and others' products and services, jointly or independently.

Stewart may use or disclose the personal information we collect for one or more of the following purposes:

- To fulfill or meet the reason for which the information is provided.
- To provide, support, personalize, and develop our website, products, and services.
- To create, maintain, customize, and secure your account with Stewart.
- To process your requests, purchases, transactions, and payments and prevent transactional fraud.
- To prevent and/or process claims.
- To assist third party vendors/service providers who complete transactions or perform services on Stewart's behalf pursuant to valid service provider agreements.
- As necessary or appropriate to protect the rights, property or safety of Stewart, our customers, or others.
- To provide you with support and to respond to your inquiries, including to investigate and address your concerns and monitor and improve our responses.
- To help maintain the safety, security, and integrity of our website, products and services, databases and other technology-based assets, and business.
- To respond to law enforcement or regulator requests as required by applicable law, court order, or governmental regulations.
- Auditing for compliance with federal and state laws, rules, and regulations.
- Performing services including maintaining or servicing accounts, providing customer service, processing, or fulfilling orders and transactions, verifying customer information, processing payments.
- To evaluate or conduct a merger, divestiture, restructuring, reorganization, dissolution, or other sale or transfer of some or all our assets, whether as a going concern or as part of bankruptcy, liquidation, or similar proceeding, in which personal information held by us is among the assets transferred.

Stewart will not collect additional categories of personal information or use the personal information we collected for materially different, unrelated, or incompatible purposes without providing you notice.

Disclosure of Personal Information to Affiliated Companies and Nonaffiliated Third Parties

Stewart does not sell your personal information to nonaffiliated third parties. Stewart may share your information with those you have designated as your agent throughout the course of your transaction (for example, your realtor, broker, or a lender). Stewart may disclose your personal information to non-affiliated third-party service providers and vendors to render services to complete your transaction.

We share your personal information with the following categories of third parties:

- Non-affiliated service providers and vendors we contract with to render specific services (For example, search companies, mobile notaries, and companies providing credit/debit card processing, billing, shipping, repair, customer service, auditing, marketing, etc.)
- To enable Stewart to prevent criminal activity, fraud, material misrepresentation, or nondisclosure.
- Stewart's affiliated and subsidiary companies.
- Parties involved in litigation and attorneys, as required by law.
- Financial rating organizations, rating bureaus and trade associations, taxing authorities, if required in the transaction.
- Federal and State Regulators, law enforcement and other government entities to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order.

The law does not require your prior authorization or consent and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or browsing information with non-affiliated third parties, except as required or permitted by law.

Right to Limit Use of Your Personal Information

You have the right to opt-out of sharing of your personal information among our affiliates to directly market to you. To opt-out of sharing your information with affiliates for direct marketing, you may send an "opt out" request to OptOut@stewart.com, or contact us through other available methods provided under "Contact Information" in this Notice. We do not share your Personal Information with nonaffiliates for their use to directly market to you without your consent.

How Stewart Protects Your Personal Information

Stewart maintains physical, technical, and administrative safeguards and policies to protect your personal information.

Contact Information

If you have specific questions or comments about this Notice, the ways in which Stewart collects and uses your information described herein, or your choices and rights regarding such use, please do not hesitate to contact us at:

Phone: Toll Free at 1-866-571-9270
Email: Privacyrequest@stewart.com

Postal Address: Stewart Information Services Corporation
Attn: Mary Thomas, Chief Compliance and Regulatory Officer
1360 Post Oak Blvd., Ste. 100, MC #14-1
Houston, TX 77056

STEWART INFORMATION SERVICES CORPORATION
PRIVACY NOTICE FOR CALIFORNIA RESIDENTS

Stewart Information Services Corporation and its affiliates and majority-owned subsidiary companies (collectively, "Stewart," "our," or "we") respect and are committed to protecting your privacy. Pursuant to the California Consumer Privacy Act of 2018 ("CCPA") and the California Privacy Rights Act of 2020 ("CPRA"), we are providing this **Privacy Notice ("**CCPA Notice"). This CCPA Notice explains how we collect, use, and disclose personal information, when and to whom we disclose such information, and the rights you, as a California resident have regarding your Personal Information. This CCPA Notice supplements the information contained in Stewart's existing privacy notice and applies solely to all visitors, users, consumers, and others who reside in the State of California or are considered California Residents as defined in the CCPA ("consumers" or "you"). All terms defined in the CCPA & CPRA have the same meaning when used in this Notice.

Personal and Sensitive Personal Information Stewart Collects

Stewart has collected the following categories of personal and sensitive personal information from consumers within the last twelve (12) months:

A. Identifiers. A real name, alias, postal address, unique personal identifier, online identifier, Internet Protocol address, email address, account name, Social Security number, driver's license number, passport number, or other similar identifiers.

B. Personal information categories listed in the California Customer Records statute (Cal. Civ. Code § 1798.80(e)). A name, signature, Social Security number, address, telephone number, passport number, driver's license or state identification card number, insurance policy number, education, employment, employment history, bank account number, credit card number, debit card number, or any other financial information.

C. Protected classification characteristics under California or federal law. Age, race, color, ancestry, national origin, citizenship, marital status, sex (including gender, gender identity, gender expression), veteran or military status.

D. Commercial information. Records of personal property, products or services purchased, obtained, or considered, or other purchasing or consuming histories or tendencies.

E. Internet or other similar network activity. Browsing history, search history, information on a consumer's interaction with a website, application, or advertisement.

F. Geolocation data

Stewart obtains the categories of personal and sensitive information listed above from the following categories of sources:

- Directly and indirectly from customers, their designees, or their agents (For example, realtors, lenders, attorneys, brokers, etc.)
- Directly and indirectly from activity on Stewart's website or other applications.
- From third parties that interact with Stewart in connection with the services we provide.

Use of Personal and Sensitive Personal Information

Stewart may use or disclose the personal or sensitive information we collect for one or more of the following purposes:

a. To fulfill or meet the reason for which the information is provided.
b. To provide, support, personalize, and develop our website, products, and services.
c. To create, maintain, customize, and secure your account with Stewart.
d. To process your requests, purchases, transactions, and payments and prevent transactional fraud.
e. To prevent and/or process claims.
f. To assist third party vendors/service providers who complete transactions or perform services on Stewart's behalf pursuant to valid service provider agreements.
g. As necessary or appropriate to protect the rights, property or safety of Stewart, our customers, or others.
h. To provide you with support and to respond to your inquiries, including to investigate and address your concerns and monitor and improve our responses.
i. To personalize your website experience and to deliver content and product and service offerings relevant to your interests, including targeted offers and ads through our website, third-party sites, and via email or text message (with your consent, where required by law).
j. To help maintain the safety, security, and integrity of our website, products and services, databases and other technology-based assets, and business.
k. To respond to law enforcement or regulator requests as required by applicable law, court order, or governmental regulations.
l. Auditing for compliance with federal and state laws, rules, and regulations.
m. Performing services including maintaining or servicing accounts, providing customer service, processing, or fulfilling orders and transactions, verifying customer information, processing payments, providing advertising or marketing services or other similar services.
n. To evaluate or conduct a merger, divestiture, restructuring, reorganization, dissolution, or other sale or transfer of some or all our assets, whether as a going concern or as part of bankruptcy, liquidation, or similar proceeding, in which personal information held by us is among the assets transferred.

Stewart will not collect additional categories of personal or sensitive information or use the personal or sensitive information we collected for materially different, unrelated, or incompatible purposes without providing you notice.

Disclosure of Personal Information to Affiliated Companies and Nonaffiliated Third Parties

Stewart does not sell your personal information to nonaffiliated third parties. Stewart may share your information with those you have designated as your agent throughout the course of your transaction (for example, a realtor, broker, or a lender).

We share your personal information with the following categories of third parties:

a. Service providers and vendors we contract with to render specific services (For example, search companies, mobile notaries, and companies providing credit/debit card processing, billing, shipping, repair, customer service, auditing, marketing, etc.)
b. Affiliated Companies.
c. Parties involved in litigation and attorneys, as required by law.
d. Financial rating organizations, rating bureaus and trade associations.
e. Federal and State Regulators, law enforcement and other government entities

In the preceding twelve (12) months, Stewart has disclosed the following categories of personal information:

Category A: Identifiers
Category B: California Customer Records personal information categories
Category C: Protected classification characteristics under California or federal law
Category D: Commercial Information
Category E: Internet or other similar network activity
Category F: Non-public education information

A. Your Consumer Rights and Choices Under CCPA and CPRA

The CCPA and CPRA provide consumers (California residents as defined in the CCPA) with specific rights regarding their personal information. This section describes your rights and explains how to exercise those rights.

i. Access to Specific Information and Data Portability Rights

You have the right to request that Stewart disclose certain information to you about our collection and use of your personal information over the past 12 months. Once we receive and confirm your verifiable consumer request, Stewart will disclose to you:

- The categories of personal information Stewart collected about you.
- The categories of sources for the personal information Stewart collected about you.
- Stewart's business or commercial purpose for collecting that personal information.
- The categories of third parties with whom Stewart shares that personal information.
- The specific pieces of personal information Stewart collected about you (also called a data portability request).
- If Stewart disclosed your personal data for a business purpose, a listing identifying the personal information categories that each category of recipient obtained.

ii. Deletion Request Rights

You have the right to request that Stewart delete any personal information we collected from you and retained, subject to certain exceptions. Once we receive and confirm your verifiable consumer request, Stewart will delete (and direct our service providers to delete) your personal information from our records, unless an exception applies.

Stewart may deny your deletion request if retaining the information is necessary for us or our service providers to:

1. Complete the transaction for which we collected the personal information, provide a good or service that you requested, take actions reasonably anticipated within the context of our ongoing business relationship with you, or otherwise perform our contract with you.
2. Detect security incidents, protect against malicious, deceptive, fraudulent, or illegal activity, or prosecute those responsible for such activities.
3. Debug products to identify and repair errors that impair existing intended functionality.
4. Exercise free speech, ensure the right of another consumer to exercise their free speech rights, or exercise another right provided for by law.
5. Comply with the California Electronic Communications Privacy Act (Cal. Penal Code § 1546 *seq.*).
6. Engage in public or peer-reviewed scientific, historical, or statistical research in the public interest that adheres to all other applicable ethics and privacy laws, when the information's deletion may likely render impossible or seriously impair the research's achievement, if you previously provided informed consent.
7. Enable solely internal uses that are reasonably aligned with consumer expectations based on your relationship with us.
8. Comply with a legal obligation.
9. Make other internal and lawful uses of that information that are compatible with the context in which you provided it.

iii. Opt-Out of Information Sharing and Selling

Stewart does not share or sell information to third parties, as the terms are defined under the CCPA and CPRA. Stewart only shares your personal information as commercially necessary and in accordance with this CCPA Notice.

iv. Correction of Inaccurate Information

You have the right to request that Stewart correct any inaccurate information maintained about.

v. Limit the Use of Sensitive Personal Information

You have the right to limit how your sensitive personal information, as defined in the CCPA and CPRA is disclosed or shared with third parties.

Exercising Your Rights Under CCPA and CPRA

If you have questions or comments about this notice, the ways in which Stewart collects and uses your information described herein, your choices and rights regarding such use, or wish to exercise your rights under California law, please submit a verifiable consumer request to us by the available means provided below:

1. Emailing us at **OptOut@stewart.com**; or

2. Visiting **https://www.stewart.com/en/quick-links/ccpa-request.html**

Only you, or someone legally authorized to act on your behalf, may make a verifiable consumer request related to your personal information. You may also make a verifiable consumer request on behalf of your minor child, if applicable.

To designate an authorized agent, please contact Stewart through one of the methods mentioned above.

You may only make a verifiable consumer request for access or data portability twice within a 12-month period. The verifiable consumer request must:

- Provide sufficient information that allows us to reasonably verify you are the person about whom we collected personal information or an authorized representative.

- Describe your request with sufficient detail that allows us to properly understand, evaluate, and respond to it.

Stewart cannot respond to your request or provide you with personal information if we cannot verify your identity or authority to make the request and confirm the personal information relates to you.

Making a verifiable consumer request does not require you to create an account with Stewart.

Response Timing and Format

We endeavor to respond to a verifiable consumer request within forty-five (45) days of its receipt. If we require more time (up to an additional 45 days), we will inform you of the reason and extension period in writing.

A written response will be delivered by mail or electronically, at your option.

Any disclosures we provide will only cover the 12-month period preceding the verifiable consumer request's receipt. The response we provide will also explain the reasons we cannot comply with a request, if applicable.

Stewart does not charge a fee to process or respond to your verifiable consumer request unless it is excessive, repetitive, or manifestly unfounded. If we determine that the request warrants a fee, we will tell you why we made that decision and provide you with a cost estimate before completing your request.

Non-Discrimination

Stewart will not discriminate against you for exercising any of your CCPA rights. Unless permitted by the CCPA, we will not:

- Deny you goods or services.
- Charge you a different prices or rates for goods or services, including through granting discounts or other benefits, or imposing penalties.
- Provide you a different level or quality of goods or services.
- Suggest that you may receive a different price or rate for goods or services or a different level or quality of goods or services.

Record Retention

Your personal information will not be kept for longer than is necessary for the business purpose for which it is collected and processed. We will retain your personal information and records based on established record retention policies pursuant to California law and in compliance with all federal and state retention obligations. Additionally, we will retain your personal information to comply with applicable laws, regulations, and legal processes (such as responding to subpoenas or court orders), and to respond to legal claims, resolve disputes, and comply with legal or regulatory recordkeeping requirements.

Changes to This CCPA Notice

Stewart reserves the right to amend this CCPA Notice at our discretion and at any time. When we make changes to this CCPA Notice, we will post the updated Notice on Stewart's website and update the Notice's effective date.

Link to Privacy Notice

https://www.stewart.com/en/privacy.html

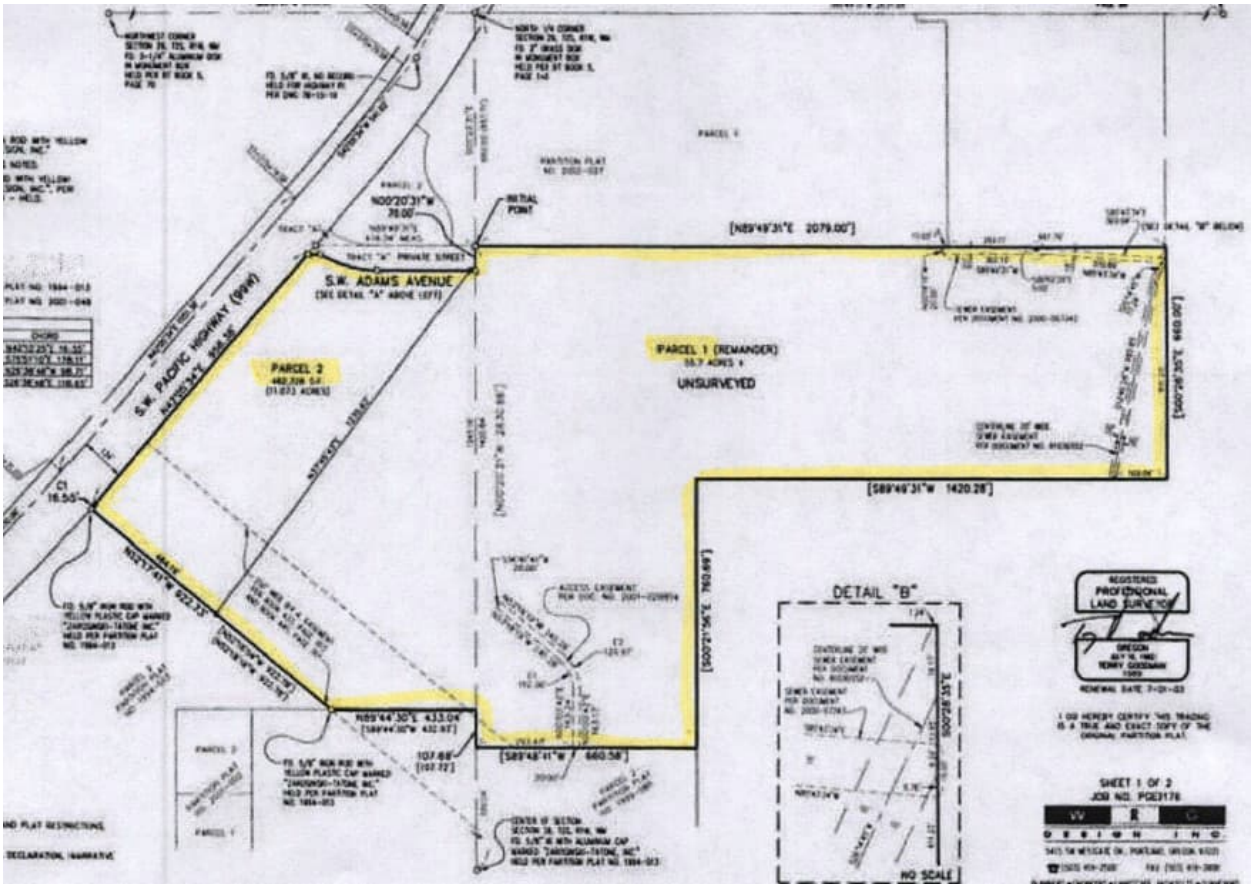
Contact Information

Stewart Information Services Corporation
Attn: Mary Thomas, Chief Compliance and Regulatory Officer
1360 Post Oak Blvd., Ste. 100, MC #14-1
Houston, TX 77056

stewart title

ORDER NO: 2481610

This sketch is provided without charge for information. It is not intended to show all matters related to the property including, but not limited to area, dimensions, encroachments or locations or boundaries. It's not a part of, nor does it modify, the commitment or policy to which it is attached. The company assumes NO LIABILITY for any matter related to this sketch. Reference should be made to an accurate survey for further information.



10611

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, That WILLIAM OLDENBURG and EDNA OLDENBURG, husband and wife, hereinafter called the grantor, in consideration of Ten and No/100ths Dollars, to grantor paid by PORTLAND GENERAL ELECTRIC COMPANY, an Oregon corporation, hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the said grantee and grantee's successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Washington and State of Oregon, described as follows, to-wit:

The following described real property in Section 29, Township 2 South, Range 1 West, Willamette Meridian, Washington County, Oregon, described as follows:

Beginning at a point 40 rods South of the quarter section post on the north line of Section 29; thence East 126 rods on a line parallel with the North line of Section 29; thence South parallel with the East line of Section 29 a distance of 40 rods; thence West parallel with the North line of Section 29 a distance of 21.5 chains to the Northwest corner of that tract conveyed to Richard Cereghino by deed recorded December 9, 1947, in Book 281, page 85, Deed Records; thence South 20 chains to the East-West centerline of Section 29; thence West 10 chains to the center of said Section; thence North 0° 15' West along the North-South centerline of Section 29, a distance of 9.93 chains; thence South 89° 49' West 10.08 chains; thence South 15' East 9.93 chains to the South line of the Southeast quarter of the Northwest quarter of said Section 29; thence West along the said legal subdivision line 9.97 chains to the Southwest corner of the Southeast quarter of the Northwest quarter; thence North along the West line of said legal subdivision 15.8 chains, more or less, to the Southeasterly line of Pacific Hwy. West; thence Northeasterly along said Southeasterly line 19 chains, more or less, to a point West of the point of beginning; thence East 475 feet, more or less, to the point of beginning.

To Have and to Hold the above described and granted premises unto the said grantee and grantee's successors and assigns forever.

And said grantor hereby covenants to and with said grantee and grantee's successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances except access restrictions, including the terms and provisions thereof, contained in deed

1.

BOOK 600 PAGE 54

10611

from William Oldenburg, et ux, to State of Oregon, by and through its State Highway Commission, dated September 7, 1954, recorded September 11, 1954, in Book 360, page 234, Deed Records and Transmission Line Easement, including the terms and provisions thereof, from William Oldenburg, et ux, to the United States of America, recorded July 22, 1960, in Book 433, page 303, Deed Records and that grantor will warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever.

In construing this deed and where the context so requires, the singular includes the plural.

WITNESS grantor's hand and seal this 11 day of May, 1966.

William Oldenburg (SEAL)

Edna Oldenburg (SEAL)

STATE OF OREGON, County of Washington) ss. May 11, 1966.

Personally appeared the above named William Oldenburg and Edna Oldenburg and acknowledged the foregoing instrument to be their voluntary act and deed.

ROBERT E. SULLIVAN NOTARY PUBLIC STATE OF OREGON

Before me:

Robert E. Sullivan

Notary Public for Oregon

My commission expires: March 23, 1967

2.

STATE OF OREGON
County of Washington } ss.

INDEXED

I, Roger Thomsen, Director of Records and Elections and Ex-Officio Recorder of conveyances for said county, do hereby certify that the within instrument of writing was received and recorded in book ... of ... Records on page ... 55
in the Records of ...
of said County.

Witness my hand and seal affixed.
ROGER THOMSEN, Director

By ... Deputy

MAY 11 3 04 PM '66

BOOK 600 PAGE 55

APPENDIX D NEIGHBORHOOD MEETING DOCUMENTATION

NOTTINGHAM ENERGY STORAGE PROJECT
NEIGHBORHOOD OPEN HOUSE SUMMARY

August 6, 2026
Sherwood Middle School Cafeteria
16956 SW Meinecke Road, Sherwood, Oregon

MEETING OVERVIEW

On August 6, 2026, BrightNight, in coordination with Environmental Resources Management (ERM), hosted a neighborhood open house regarding the proposed Portland General Electric utility line replacement project and the associated Nottingham Energy Storage Project.

The meeting was held from 5:00 p.m. to 7:00 p.m. at the Sherwood Middle School cafeteria, (16956 SW Meinecke Road, Sherwood, Oregon). The meeting was conducted in an open-house format, allowing attendees to arrive and leave at any point during the two-hour period and to speak directly with project representatives and subject-matter experts at a series of information stations. The public notice described the meeting as a "come and go as you are able" event and advised attendees that project representatives would be available to answer questions and provide information.

The open house provided information regarding the proposed replacement and upgrade of existing transmission structures, as well as the Nottingham Energy Storage Project, a proposed 200-megawatt battery energy storage system in Washington County, with construction anticipated to begin in 2027 and commercial operation targeted for 2028.

The primary purpose of the meeting was to provide information about the proposed Utility Line Replacement Project and give nearby property owners and other interested community members an opportunity to ask questions directly of project representatives and technical specialists. Because the proposed utility improvements are associated with the Nottingham Energy Storage Project, BrightNight also provided information regarding the energy storage facility and related environmental, safety, economic and community considerations.

PUBLIC NOTICE AND OUTREACH

Public notification for the open house included both mailed notice to nearby property owners and direct email outreach.

ERM, on behalf of TUAL, bn, LLC, mailed a formal Notice of Neighborhood Meeting to property owners within 1,000 feet of the project location. The notice identified the August 6 meeting date, time and location, described the proposed utility line replacement project, and invited interested community members to attend.

BrightNight also conducted supplemental email outreach to individuals who had attended previous project events, signed up to receive project information, or were otherwise included on the project's outreach list. An initial email invitation was distributed on July 23, 2026. A reminder email was distributed on August 3, 2026. The emails encouraged recipients to attend and to share the invitation with others who might be interested.

The email communications described both the utility line replacement project and the Nottingham Energy Storage Project and explained that the meeting would use an informal open-house format in which attendees could speak directly with subject-matter experts.

ATTENDANCE

Attendees were encouraged to sign in upon arrival at the meeting. Forty-six individuals signed the meeting sign-in sheets. Because attendance at the open house and use of the sign-in sheets were voluntary, the number of individuals who signed in should not be interpreted as a definitive count of all persons who attended.

The event photographs document attendance throughout the two-hour open-house period and show attendees circulating among information stations, reviewing project materials and engaging in individual and small-group conversations with project representatives.

Representatives participating in the meeting included BrightNight project personnel, ERM representatives, technical and safety specialists, communications staff, and representatives of organized labor.

OPEN HOUSE FORMAT AND INFORMATION PROVIDED

The August 6 meeting was organized as an open house with multiple staffed information stations. Rather than conducting a formal presentation followed by a single question-and-answer period, attendees were able to move among the stations at their own pace, review maps and printed materials, and speak directly with project representatives and subject-matter experts.

1. Utility Line Replacement Project Information

   The Utility Line Replacement Project was the central focus of the open house. Project representatives and ERM staff were available to explain the proposed replacement and upgrade of existing utility infrastructure, including the location of proposed transmission structures and tie-in points, the relationship of the work to existing utility facilities, and the applicable land-use review process.

   Maps and other visual materials were available to help attendees understand the location and configuration of the proposed improvements and their relationship to surrounding properties and resources.

2. Nottingham BESS Project Information

BrightNight representatives provided information about the Nottingham Energy Storage Project and its relationship to the utility line improvements. Materials described the proposed 200 MW/800 MWh battery energy storage system, the project site, anticipated schedule, proposed interconnection with the existing electrical system, and the role of energy storage in supporting regional grid needs.

Attendees could review project maps and other graphics and speak directly with BrightNight representatives about the project design, site selection and proposed operations.

An immersive virtual-reality experience was also available. The experience used aerial and ground-level imagery to provide additional context regarding the proposed battery facility, existing utility infrastructure, the Sherwood Substation, nearby wetlands, the Tualatin River National Wildlife Refuge and the proposed transmission route.

3. Environment & Conservation

Project representatives provided information regarding environmental conditions in and around the project area, including nearby wetlands, floodplain conditions, wildlife and the Tualatin River National Wildlife Refuge.

Materials addressed the proposed transmission interconnection, measures intended to reduce potential impacts to birds and other wildlife, and BrightNight's planned use of Avian Power Line Interaction Committee design standards and related avoidance and minimization measures.

Information was also available regarding the proposed land exchange associated with the Refuge, future habitat restoration opportunities and land-management considerations.

4. Project Safety

A dedicated station addressed battery energy storage system safety, construction practices, fire prevention and emergency response.

Technical and safety specialists were available to discuss system design, monitoring, fire and life-safety measures, and coordination with local emergency responders. Supporting battery safety and fire-safety materials were available for attendees to review.

5. Economic Impact

Information was provided regarding the anticipated economic effects of the Nottingham Energy Storage Project, including construction employment, local wages and benefits, economic activity, and state and local tax revenue.

Representatives were available to discuss construction jobs, the anticipated use of skilled labor and the project's potential longer-term fiscal contributions to the area.

6. Community Benefit Information

   BrightNight representatives also provided information about the company's approach to community benefits and examples of investments made in communities hosting other BrightNight projects.

   Materials identified potential areas for local investment associated with Nottingham, including schools, recreation and trails, environmental initiatives and emergency services. Attendees could discuss community needs and potential opportunities directly with project representatives.

PUBLIC QUESTIONS AND COMMENTS

Attendees were able to ask questions throughout the open house in individual and small-group conversations with project representatives. Written comment cards were also available, and staff stationed throughout the room recorded questions and issues raised during conversations. The comments and staff notes reflected several recurring areas of interest and concern.

- **Transmission line route and design.** Attendees asked questions regarding the proposed transmission interconnection, the locations and heights of transmission structures, proximity to the Refuge and Onion Flats, and whether the line could be placed underground. Project representatives discussed the proposed overhead route, the project's proximity to the Sherwood Substation, engineering and environmental considerations associated with undergrounding, and proposed measures to reduce potential avian impacts.

- **Wildlife and the Tualatin River National Wildlife Refuge.** Attendees raised questions and concerns regarding possible effects of transmission lines on birds, habitat connectivity, the Refuge and the Onion Flats area. Questions included the potential for bird collisions and the effectiveness of bird-diversion and other mitigation measures. Information was provided regarding APLIC design standards, flight diverters, setbacks, the planned use of an existing disturbed utility corridor and the U.S. Fish and Wildlife Service analysis.

- **Land exchange, restoration and stewardship.** Attendees asked about the value and ecological condition of the property proposed for transfer to the Refuge, future restoration of that property, management of invasive vegetation, floodplain conditions and long-term stewardship of undeveloped portions of the project property.

- **Battery and fire safety.** Questions addressed the safety of lithium-ion battery energy storage systems, fire risk, emergency response, system monitoring and coordination with

fire and emergency-response agencies. Safety specialists were available to discuss project design and emergency-response considerations.

- **Project need, site selection and alternatives.** Attendees asked why the project was needed, why the proposed location had been selected, whether alternative sites had been considered, and how the project would connect with and support the regional electrical system. BrightNight materials stated that more than 40 potential locations had been evaluated and described proximity to the Sherwood Substation, available buildable land and interconnection requirements as significant siting considerations.

- **Economic and community impacts.** Attendees discussed construction employment, local tax revenue, union jobs and potential community benefits. Some attendees expressed interest in the project's potential economic and energy-system benefits, while others questioned whether those benefits were sufficient to offset perceived environmental or community impacts.

PUBLIC NOTICE FLYER

Notice of Neighborhood Meeting

A Neighborhood Meeting will be held on Thursday evening August 6, 2026, at the Sherwood Middle School cafeteria (16956 SW Meinecke Road) to inform the community about a proposed replacement and upgrade of existing transmission structures. You are receiving notice because you own property within 1,000 feet of the project location near SW Langer Farms Parkway, south of the Home Depot and then extending into Washington County jurisdiction. Interested community members are encouraged to attend this meeting.

PROJECT PROPOSAL

ERM on behalf of TUAL, bn, LLC is proposing a Portland General Electric (PGE) utility line replacement project. The project will traverse approximately 1,200 feet and involve the replacement of up to 5 poles within Sherwood City limits. The project extends an additional approximately 2,130 feet within Washington County jurisdiction to a proposed energy storage facility. A figure of the pole locations is provided below.

MEETING INFORMATION

Date: Thursday August 6th, 2026

Time: 5:00 – 7:00 PM

Location: Sherwood Middle School, 16956 SW Meinecke Road, Sherwood, Oregon

AGENDA

This is a come and go as you are able open house. There is no need to arrive at the beginning or stay the entire time. Various subject matter experts representing the project will be available to answer questions and provide information.

For further information:

Alex Conzemius, AICP
Alex.Conzemius@erm.com
T: +1 612 337 3350

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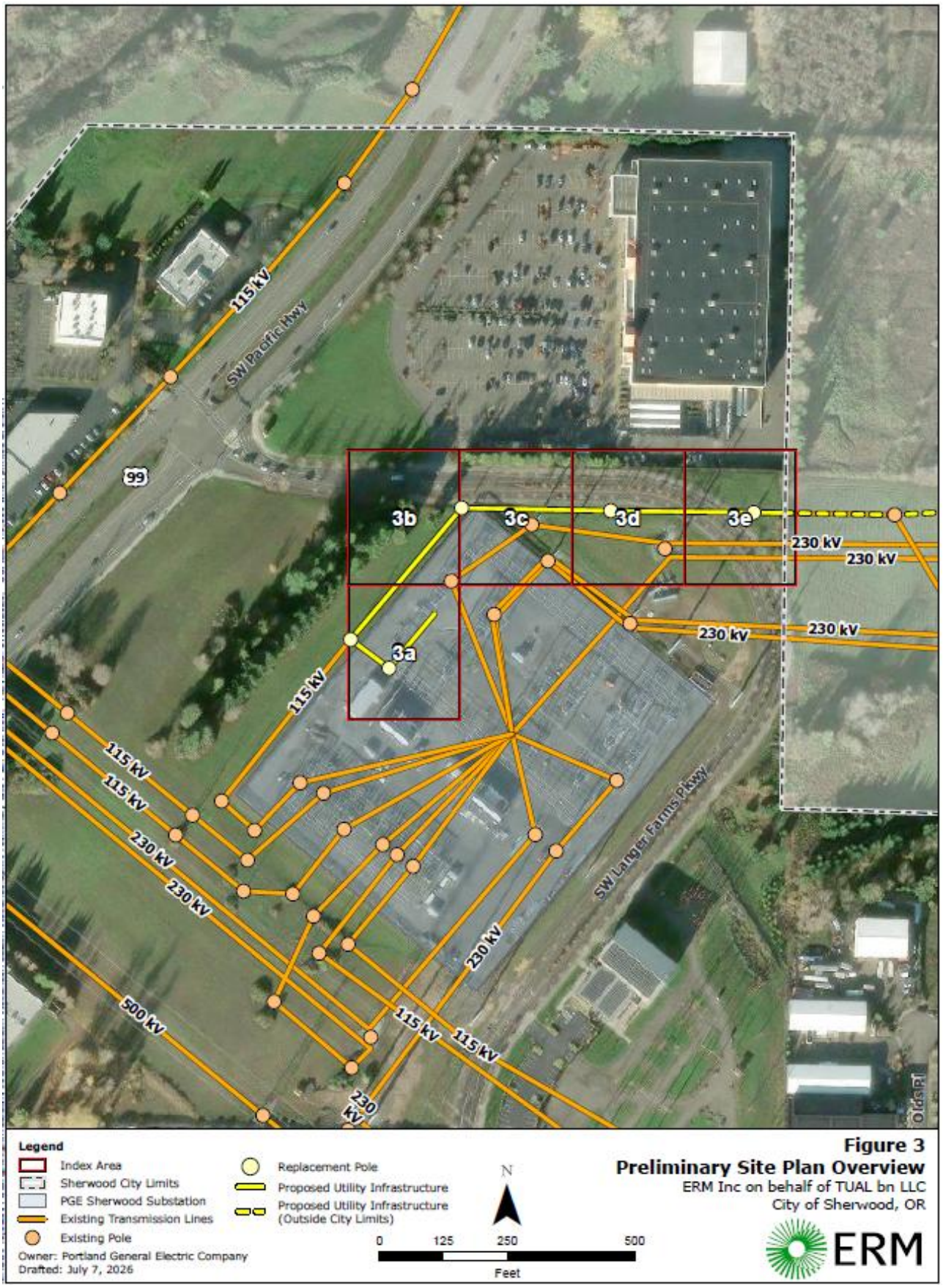


Figure 3
Preliminary Site Plan Overview
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

MAILING INFORMATION

Affidavit of Mailing

DATE: 7/21/2026

STATE OF OREGON)
)
Washington County)

I, Alex Conzemius, representative for the TUAL, bn, LLC utility line replacement proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject project, was placed in a U.S. Postal receptacle on 7/21/2026.

Representatives Name: Alex Conzemius
Name of the Organization: ERM

U.S. Fish and Wildlife Service
2600 SE 98th Avenue, Suite 10
PORTLAND, OR 97266

AMSTAD, TONY & DEEANN REV TRUST
16300 SW 192ND AVE
SHERWOOD, OR 97140

BARLETT, MARK F & BARTLETT, PATRICIA A
14480 NE REX HILL CT
NEWBERG, OR 97132

COSTCO WHOLESALE CORPORATION
999 LAKE DR
ISSAQUAH, WA 98027

DIG SHERWOOD OFFICE 20015 LLC
805 SW BROADWAY STE 600
PORTLAND, OR 97205

DYNAMIC FINANCE CORP
853 E VALLEY BLVD #200
SAN GABRIEL, CA 91776

EVERLEY, STEVE
20055 SW PACIFIC HWY STE 209
SHERWOOD, OR 97140

G GARY LLC
1800 SW 1ST AVE #220
PORTLAND, OR 97201

G&T SHERWOOD LLC
PO BOX 23051
TIGARD, OR 97281

GHERMAN, DANIEL & GHERMAN, LIA & SCHIRIAC, GHEORGHE ET AL
19630 SW PACIFIC HWY
SHERWOOD, OR 97140

HAHN, PHILIP G & LISA W REV LIV TRUST
19270 SW PACIFIC HWY
SHERWOOD, OR 97140

HOME DEPOT USA INC
PO BOX 105842
ATLANTA, GA 30348

J&J LEGACY LLC
14130 SW HARGIS RD
BEAVERTON, OR 97008

LANGER, CLARENCE D JR IRREV TRUST & LANGER, PAMELA A IRREV TRUST
15585 SW TUALATIN SHERWOOD RD
SHERWOOD, OR 97140

LAUGHING RANCH HOLDINGS LLC
15114 SW ARROW ST
SHERWOOD, OR 97140

LAZY U RANCH LLC
23775 SW STONEHAVEN ST
SHERWOOD, OR 97140

LITERA HOLDINGS LLC
20715 SW OLDS PL
SHERWOOD, OR 97140

LS PROPDROP LLC
PO BOX 5350
BEND, OR 97708

MCLELLAN ESTATE CO
3 TWIN DOLPHIN DR STE 315
REDWOOD CITY, CA 94065

MORGAN BAKER HOLDINGS LLC
15205 SW ARROW ST
SHERWOOD, OR 97140

NELMUN MANAGEMENT LLC
21370 SW LANGER FARMS PKWY #142-171
SHERWOOD, OR 97140

PORTLAND GENERAL ELECTRIC CO
121 SW SALMON ST
PORTLAND, OR 97204

RALSTON & RALSTON LLC
2959 SW BENNINGTON DR
PORTLAND, OR 97205

SCHACH, KATHRYN V TRUST & ANDERSON, ERIC JOHN & ANDERSON, BARBARA
20935 SW REGAL CT

SEMI TRUCK CENTERS INC
20633 SW OLDS PL
SHERWOOD, OR 97140

SENTINEL SELF STORAGE LLC
28185 SW HEATER RD
SHERWOOD, OR 97140

SHERWOOD, CITY OF
22560 SW PINE ST
SHERWOOD, OR 97140

TACKE LLC & LAF LLC
901 NE GLISAN ST STE 200
PORTLAND, OR 97232

TMK PROPERTIES LLC
9621 SW CLARK HILL RD
BEAVERTON, OR 97007

UNITED STATES OF AMERICA DEPT OF INTERIOR
911 NE 11TH AVE
PORTLAND, OR 97232

WALGRAEVE, GARY
11345 SW HERMAN RD
TUALATIN, OR 97062

WASHINGTON COUNTY
1400 SW WALNUT ST MS 18
HILLSBORO, OR 97123

Appendix D

Taxlot Number	Owner Name	Owner Address	Owner City	Owner State	Owner ZIP	Owner With Multiple Parcels					
2S1200002300	U.S. Fish and Wildlife Service	2600 SE 98th Avenue, Suite 10	PORTLAND	OR	97266	2S1200002400	2S1200002500				
2S120D001200	AMSTAD, TONY & DEEANN REV TRUST	16300 SW 192ND AVE	SHERWOOD	OR	97140						
2S129A002200	BARLETT, MARK F & BARTLETT, PATRICIA A	14480 NE REX HILL CT	NEWBERG	OR	97132						
2S129B001500	COSTCO WHOLESALE CORPORATION	999 LAKE DR	ISSAQUAH	WA	98027						
2S129B000105	DIG SHERWOOD OFFICE 20015 LLC	805 SW BROADWAY STE 600	PORTLAND	OR	97205						
2S129A001400	DYNAMIC FINANCE CORP	853 E VALLEY BLVD #200	SAN GABRIEL	CA	91776						
2S129B000103	EVERLEY, STEVE	20055 SW PACIFIC HWY STE 209	SHERWOOD	OR	97140						
2S129B000102	G GARY LLC	1800 SW 1ST AVE #220	PORTLAND	OR	97201						
2S129A003300	G&T SHERWOOD LLC	PO BOX 23051	TIGARD	OR	97281						
2S120D001100	GHERMAN, DANIEL & GHERMAN, LIA & SCHIRIAC, GHEORGHE ET AL	19630 SW PACIFIC HWY	SHERWOOD	OR	97140						
2S120D000500	HAHN, PHILIP G & LISA W REV LIV TRUST	19270 SW PACIFIC HWY	SHERWOOD	OR	97140						
2S129A001500	HOME DEPOT USA INC	PO BOX 105842	ATLANTA	GA	30348	2S129A003500	2S129A003600				
2S129A001800	J&J LEGACY LLC	14130 SW HARGIS RD	BEAVERTON	OR	97008						
2S129B000901	LANGER, CLARENCE D JR IRREV TRUST & LANGER, PAMELA A IRREV TI	15585 SW TUALATIN SHERWOOD RD	SHERWOOD	OR	97140						
2S129A002400	LAUGHING RANCH HOLDINGS LLC	15114 SW ARROW ST	SHERWOOD	OR	97140						
2S120D000700	LAZY U RANCH LLC	23775 SW STONEHAVEN ST	SHERWOOD	OR	97140	2S129A000801					
2S129A002000	LITERA HOLDINGS LLC	20715 SW OLDS PL	SHERWOOD	OR	97140						
2S129B001400	LS PROPDROP LLC	PO BOX 5350	BEND	OR	97708						
2S129A002300	MCLELLAN ESTATE CO	3 TWIN DOLPHIN DR STE 315	REDWOOD CITY	CA	94065						
2S129A001900	MORGAN BAKER HOLDINGS LLC	15205 SW ARROW ST	SHERWOOD	OR	97140						
2S129A003400	NELMUN MANAGEMENT LLC	21370 SW LANGER FARMS PKWY #142-171	SHERWOOD	OR	97140						
2S129A001100	PORTLAND GENERAL ELECTRIC CO	121 SW SALMON ST	PORTLAND	OR	97204	2S129A001650	2S129A001651	2S129A001652	2S129B001800	2S129B001900	
2S129A000500	RALSTON & RALSTON LLC	2959 SW BENNINGTON DR	PORTLAND	OR	97205						
2S129B000200	SCHACH, KATHRYN V TRUST & ANDERSON, ERIC JOHN & ANDERSON,	20935 SW REGAL CT	ALOHA	OR	97003						
2S129A002100	SEMI TRUCK CENTERS INC	20633 SW OLDS PL	SHERWOOD	OR	97140						
2S129B000900	SENTINEL SELF STORAGE LLC	28185 SW HEATER RD	SHERWOOD	OR	97140						
2S129A000301	SHERWOOD, CITY OF	22560 SW PINE ST	SHERWOOD	OR	97140	2S129A002700					
2S129B001100	TACKE LLC & LAF LLC	901 NE GLISAN ST STE 200	PORTLAND	OR	97232						
2S129A000300	TMK PROPERTIES LLC	9621 SW CLARK HILL RD	BEAVERTON	OR	97007						
2S120D000300	UNITED STATES OF AMERICA DEPT OF INTERIOR	911 NE 11TH AVE	PORTLAND	OR	97232	2S120D000400	2S120D000600	2S120D000800	2S129A000100		
2S128B000200	WALGRAEVE, GARY	11345 SW HERMAN RD	TUALATIN	OR	97062						
2S120D001000	WASHINGTON COUNTY	1400 SW WALNUT ST MS 18	HILLSBORO	OR	97123						

PUBLIC MEETING ATTENDANCE AND COMMENTS

BRIGHTNIGHT
Power when you need it

Nottingham Energy Storage Project

— PLEASE SIGN IN —

Name	Mailing Address	Phone Number	Email
JP Newmann			jpnewmann18@gmail.com
Helena Vargas			27vargash@hsdstudents.org
Jacqueline Jacquez		503-440-2439	Jacquezjacqueline13@gmail.com
Piper Thayne		971-323-5018	
Bill Aldenbrook		360-607-1871	
[redacted]		[redacted]	
[illegible]		503-781-3766	chris@pacwestresources.com
Brad West		503-781-1385	Bradleywest@outlook.com
Tina West		503-807-8[illegible]	Kristinawest@outlook.com
Michaella west		5418291311	Michaellacb4@gmail.com
Linda Hoffman	Rug City	503-479-8112	Linda.millshoffman@gmail.com
PJacquez			Pjacquez@[illegible]
Dan Brenner			dbrenner32@[illegible]
Debbie Walk	Tigard		Walkd@[illegible].com

Appendix D

BRIGHTNIGHT
Power when you need it

Nottingham Energy Storage Project

— PLEASE SIGN IN —

Name	Mailing Address	Phone Number	Email
Janet Oliver	12670 SW Dickson	719-660-9372	wajoliver@gmail.com
Bruce Sulcher		503 544-7979-580	
MARIO RIVERA CANDEROS	301 E Columbia Dr #17 Newberg, OR	971-487-9446	riverolandeerosmario@gmail.com
DAVID ARANDA	1354 33rd Pl Forest Grove, OR	971-245-9537	ARANDA1494@GMAIL.COM
Chris Blair	17280 SW Bard Way Aloha OR	503 348-7398	ChrisBlair72@yahoo.com
Brooke Brownlee	121 SW Salmon St, Portland	503-509-7321	
Yumeen P Iverson	22112 SW Hall ST	971-285-1026	neniyy@gmail.com
Tom Stickler Lisa Brenner	3816 NE Glisan, PDX	503-477-2263	tstickler@gmail.com
ANDREA D'Amico	13090 SW Vandenberg	503-707-9[illegible]	andreadamico@msn.com
Randy Campbell	13090 SW Vandenberg		
JAMES BLACK	19190 SW 90TH AVE		
Thor Hinckley	7421 SE Grant	503 706 3972	thorhinckley53@gmail.com
Narendra Varma	13390 SW Morgan Rd, Sherwood	503 308 8276	narendra@ourtable.us
Nora Harren	54A Honeycomb Ln Bellingham WA 98229	208-995-3548	noraroseh@gmail.com

BRIGHTNIGHT
Power when you need it

Nottingham Energy Storage Project

— PLEASE SIGN IN —

Name	Mailing Address	Phone Number	Email
Harry Klimek			Klimekml@aol.com
Cheryl Hart			Oregonchart@comcast.net
Bonnie Anderson			Info@Friendsoftualatinrefuge.org
Alan Christensen			gardenjoy470comcast.net
GLEN KRIEGER	23358 SW Priest Sherwood Oregon 97140		gtkrieg[redacted]@gmail.com
RICHARD BAILEY			
Edgar Del Horno			edgardelhorno204@yahoo.com
Daya Ananda	P.O. Box 278 Cornelius	503-887-2901 OR 97113	ivanalocal737.org
Meredith Armstrong			Meredith.armstrong@pgn.com
Anthony Levanda			anthony@climatejobsoregon.org
Steve Cohen			scohen@gmail.com
Jen Little			jen@wcchamber.org
Jana Jenkins	800 Monroe St Hanford OR 97446	541-214-9034	Janac@Oregon.gov
John Langdon	30592 Diamond Hill Hanford OR 97446	541-554-6848	Jana@Oregon.gov

Appendix D

BRIGHTNIGHT
Power when you need it

Nottingham Energy Storage Project

— PLEASE SIGN IN —

Name	Mailing Address	Phone Number	Email
Jim Huston	21125 SW Rambling Rock Rd Sherwood OR 97140	503 780 1952	Jim@jhclimateventures.com
Judith Bartlett	5349 N Michigan Ave Portland, OR 97217	970.318.6611	judith@salmonberrytrail.org
Steve Moore	11880 SW Queen Elizabeth King City OR 97224	503-747-8881	bgft49@gmail.com
Mark Fitzsimons	10060 SW Katherine St Tigard	503 756-7534	mfitzsimpice@gmail

Appendix D

Statement Issued to:BrightNight (BN) and Portland General Electric(PGE) at a public neighborhood meeting on August 6, 2026 under requirements by the City of Sherwood for purposes of obtaining a conditional use permit.

Statement from: Friends of the Tualatin River NWR Board of Directors. Friends have been in regular communication with both BN and the City of Sherwood for over the past 6 months. From the earliest of these meetings, which only occurred after most of the BN project design had been completed, Friends have held the position that construction of the overhead power line proposed by BN will result in birds using the Refuge lands striking the power lines, resulting in their death. Bird mortality resulting from power line strikes has been well documented over the entire United States and scientific publications state it exceeds millions each year. Birds using the Tualatin Refuge include some listed under State of Oregon concern, like dusky Canada geese, and national concern, like bald eagles.

We have repeatedly asked BN to consider burying the lines or to work with a neighboring BESS proposal to coordinate a better, less threatening location for the lines. BN has continued to tell Friends that, while they have pursued other options for the lines, they can't make it happen. Cost considerations seem to be the most prevalent reason. Friends have never received detailed, specific answers to our questions, seemingly implying that we should just accept what we are told.

Friends have refrained from statements about the land exchange but a recent memo needs some comment. We believe the land exchange is a screen to remove attention from the question of the power line and was driven from Washington DC Department of Interior/Fish and Wildlife Service, as stated during a meeting with BN.The recent memo attempts to make the exchange seem very important but we believe it facilitated the approval the project received in DC and is, in fact, a red herring.

The role of PGE in this process leaves much to be desired. The two BESS stations are, in fact, PGE projects. Companies responded to their RFP, PGE awarded contracts, these projects are a part of a bigger PGE expansion to meet power demands (some of which may serve data centers in the Hillsboro area), and the operation of these projects will be a part of a larger PGE operation into the future. It seems that PGE could have taken a much more authoritative role in having BN address the concerns made by Friends and a large number of frustrated rate payers.

Appendix D

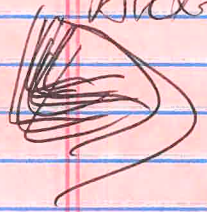
Econ Table

- Data center use concerns, is any energy earmarked for that specific use.
- Tax breaks from the county or state?
- Value of land donation?

ERM Table

Limpa - talked to her about replacement rates she asked why ~~the~~ is higher bc they, we explained less poles "she said that makes sense"

w/ Alex Climate Energy ~~Edu~~



Appendix D

NOTTINGHAM OPEN HOUSE

8/6 COMMUNITY BENEFITS ✗

- 3 high school students from the area part of the enviro club learning about the enviro impacts of the project.

- Couple who shook Scots hand black cap yellow writing.

Steve
- land exchange (doesn't want it to happen)
- degraded (and for wildlife refuge to restore it. (taking it on would be to expensive)

left a comment card brought up open house (disappointed.)

Former wildlife refuge staff

Powerlines at the edge of the Refuge (bird impacts) bury or move the lines fencing the whole area off.

The refuge is beloved in the community.
(short grey glasses beige hat dark blue shirt)

- Salmon Berry Trail. - Judith.
(recover railroad rails to trails

Appendix D

Project Safety

- What is the size of the BESS?
- Where are you sourcing the BESS? USA or China?
- Is this a union job?
- Anthony: describe the concern on thermal runaway.
- Jawy (Refuge Ex director)
  - chemical runoff?
  - impact to refuge?
  - why can't you go UG?

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Larry Klimek

Email and/or Phone: Klimekm1@aol.com

Comment: PGE should consider putting Bird Diverters on the their lines adjacent to the Refuge.

Monitoring for Bird Strikes - PGE Shall not involved with monitoring as well. Will birds be diverted and go elsewhere?

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Cindy Rakowski / Jim Booker

Email and/or Phone: 509 308 6408

Comment: It would be nice to include walking / biking access to the refuge.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Tom & Lisa

Email and/or Phone: tstbolt@gmail.com

Comment: Bury the transmission lines!!!

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: TYLER SMITH

Email and/or Phone: TYLER@IRONWORKERS29.ORG

Comment: LET'S BUILD THIS! GREEN JOBS ARE GOOD JOBS. TRADES PEOPLE HAVE ENTIRE CAREERS WITH "TEMPORARY" JOBS.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Piper Thayne (Tualatin High School Climate Change Activism Club)

Email and/or Phone: 971-323-5018

Comment: With this recently cobbled plan in which we had no real say, as a community, is it connected to Hillsboro AI databases? Where is the energy going? Why is the energy grid constraining regional growth? Is this plan ultimately to benefit people, or get big companies a profit?

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Jacqueline Jacquez (tualatin High School climate change activism club)

Email and/or Phone: 503-440-2430

Comment: How is the project focused on mitigating potential leakage into the wetlands or watershed?

Beside the cost of the underground lines what is the hesitation?

From the land you donated to the refuge is that land even useful because of the fact it has been deprived of nutrients and most likely have fertilizer waste?

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Helena Vargas (president of TuHS Climate Change Activism Club)

Email and/or Phone: 971-727-6024

Comment: It is the expressed opinion of Tualatin High School's Climate Change Activism Club that the project will be harmful to the wetlands, because of its proximity and impact on bird flight. We are concerned that the donated land in exchange is not sufficient compensation due to its previous usage as farmland and the invasive species present. This project has not been widely advertised to the community either. For these reasons, we urge BrightNight to consider underground powerlines to mitigate environmental and aesthetic impact.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Piper Thayne (Tualatin High School Climate Change Activism Club)

Email and/or Phone: 971-323-5018

Comment: If we let your company build near a wetland, and offer unusable and grazed land as tribute, how does this set a precedent for other projects, from this company or others? What will stop developers from encroaching on natural spaces, and skewing the community's view of conservation and protection?

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Chris West

Email and/or Phone: 503-781-3766

Comment: This is a great project, we need the infrastructure and storage to capture wind and solar energy and prevent brown outs.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Katherine Schach

Email and/or Phone:

Comment: Environmental Concerns
Visual Concerns
Would like to receive meeting minutes.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Bradley West

Email and/or Phone: Bradleywest@outlook.com 5037811385

Comment: This will provide many Union jobs, help local energy costs and a start to Clean energy. Being able to provide the grid with Clean power during high usage times will be extremely helpful.
Electrical license: 3231J - Local 48

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Tina West

Email and/or Phone: Kristinawest@outlook.com

Comment: I support this project! I don't see any problems

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Andrea D'Amico

Email and/or Phone: anddamico@msn.com

Comment: What measure have been made to avoid FIRE. IF a storage facility catches on fire it can RUIN a Community.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Andrea D'Amico

Email and/or Phone: anddamico@msn.com

Comment: SNR's need protection once they are GONE, there IS NO REBUILDING. What has been done to protect the wild Life?
Please Respond

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Andrea D'Amico

Email and/or Phone: anddamico@msn.com

Comment: The donated land who will Re-propose the wetland? If it remains a dry seasonal fire it will only be a fire danger.

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Andrea D'Amico

Email and/or Phone: anddamico@msn.com

Comment: Why NOT UNDERGROUND ~~FORCES~~ AGF FORCES any NEW Buildings Underground.

With our climate becoming drier, we should do everything to AVOID FIRE DANGER

Please RESPOND

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Pat Jacquez

Email and/or Phone: pjacquez@gmail.com

Comment: Aesthetically, the station and poles will bring down my property value. No trees can be used to blend it in. Poles cannot be hidden. After 20 years the environmental impact of disposing the batteries, the unused poles →

Share Your Thoughts

BRIGHTNIGHT
Power when you need it

Name: Pat Jacquez

Email and/or Phone: pjacquez@gmail.com

Comment: As a community we would like to see a price comparison & the option to put the powerlines under ground. The proposed power lines are substantially taller twice the size and "will" cause a

will be left to the community?
Many were not sure,
heard maybe . . . I think . . .
But where is the reassurance.

a negative impact on the migrating birds. The impact assessment seems to have not been done during migrating times or taken into consideration the flight patterns/heights of birds in the area.

No amount of thick wire or indicators is sufficient. Thank You. Patty

APPENDIX E CWS PRESCREENING

Appendix E

Clean Water Services

SENSITIVE AREA PRE-SCREENING SITE ASSESSMENT

Clean Water Services File Number 26-001867

1. **Jurisdiction:** Sherwood

2. **Property Information** (example: 1S234AB01400)
   Tax lot ID(s): 2S129A001650, 2S129B001800, and 2S129A001

   ***OR* Site Address:** 20655 SW Langer Farms Parkway
   City, State, Zip: Sherwood,Oregon,97140
   Nearest cross street:

3. **Owner Information**
   Name: Portland General Electric
   Company: Portland General Electric
   Address: 121 Salmon Street
   City, State, Zip: Portland,Oregon,97204
   Phone/fax: 6129875061
   Email: alex.conzemius@erm.com

4. **Development Activity** (check **all** that apply)
   - ☐ Addition to single family residence (rooms, deck, garage)
   - ☐ Lot line adjustment
   - ☐ Minor land partition
   - ☐ Residential condominium
   - ☐ Commercial condominium
   - ☐ Residential subdivision
   - ☐ Commercial subdivision
   - ☐ Single lot commercial
   - ☐ Multi lot commercial
   - Other: Utility Line Infrastructure

4. **Applicant Information**
   Name: Environmental Resource Management
   Company: Environmental Resource Management
   Address: 1050 SW 6th Ave. Ste. 1650
   City, State, Zip: Portlan,Oregon,97204
   Phone/fax: 6123373350
   Email: alex.conzemius@erm.com

6. **Will the project involve any off-site work?** ☐ Yes ☒ No ☐ Unknown
   Location and description of off-site work:

7. **Additional comments or information that may be needed to understand your project:**

This application does NOT replace Grading and Erosion Control Permits, Connection Permits, Building Permits, Site Development Permits, DEQ 1200-C Permit or other permits as issued by the Department of Environmental Quality, Department of State Lands and/or Department of the Army COE. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.

By signing this form, the Owner or Owner's authorized agent or representative, acknowledges and agrees that employees of Clean Water Services have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related to the project site. I certify that I am familiar with the information contained in this document, and to the best of my knowledge and belief, this information is true, complete, and accurate.

Print/type name: Environmental Resource Management
Print/type title: Alex Conzemius, AICP
Signature: ONLINE SUBMITTAL
Date: 7/14/2026

FOR DISTRICT USE ONLY

- ☐ Sensitive areas potentially exist on site or within 200' of the site. **THE APPLICANT MUST PERFORM A SITE ASSESSMENT PRIOR TO ISSUANCE OF A SERVICE PROVIDER LETTER.** If Sensitive Areas exist on the site or within 200 feet on adjacent properties, a Natural Resources Assessment Report may also be required.
- ☐ Based on review of the submitted materials and best available information sensitive areas do not appear to exist on site or within 200' of the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider Letter as required by Resolution and Order 19-5, Section 3.02.1, as amended by Resolution and Order 19-22. All required permits and approvals must be obtained and completed under applicable local, State and federal law.
- ■ Based on review of the submitted materials and best available information the above referenced project will not significantly impact the existing or potentially sensitive area(s) found near the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect additional water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider Letter as required by Resolution and Order 19-5, Section 3.02.1, as amended by Resolution and Order 19-22. All required permits and approvals must be obtained and completed under applicable local, state and federal law.
- ■ **THIS SERVICE PROVIDER LETTER IS NOT VALID UNLESS** 1 **CWS APPROVED SITE PLAN(S) ARE ATTACHED.**
- ☐ The proposed activity does not meet the definition of development or the lot was platted after 9/9/95 ORS 92.040(2). **NO SITE ASSESSMENT OR SERVICE PROVIDER LETTER IS REQUIRED.**

Reviewed by: alex galluzzo
Date: 07/23/26

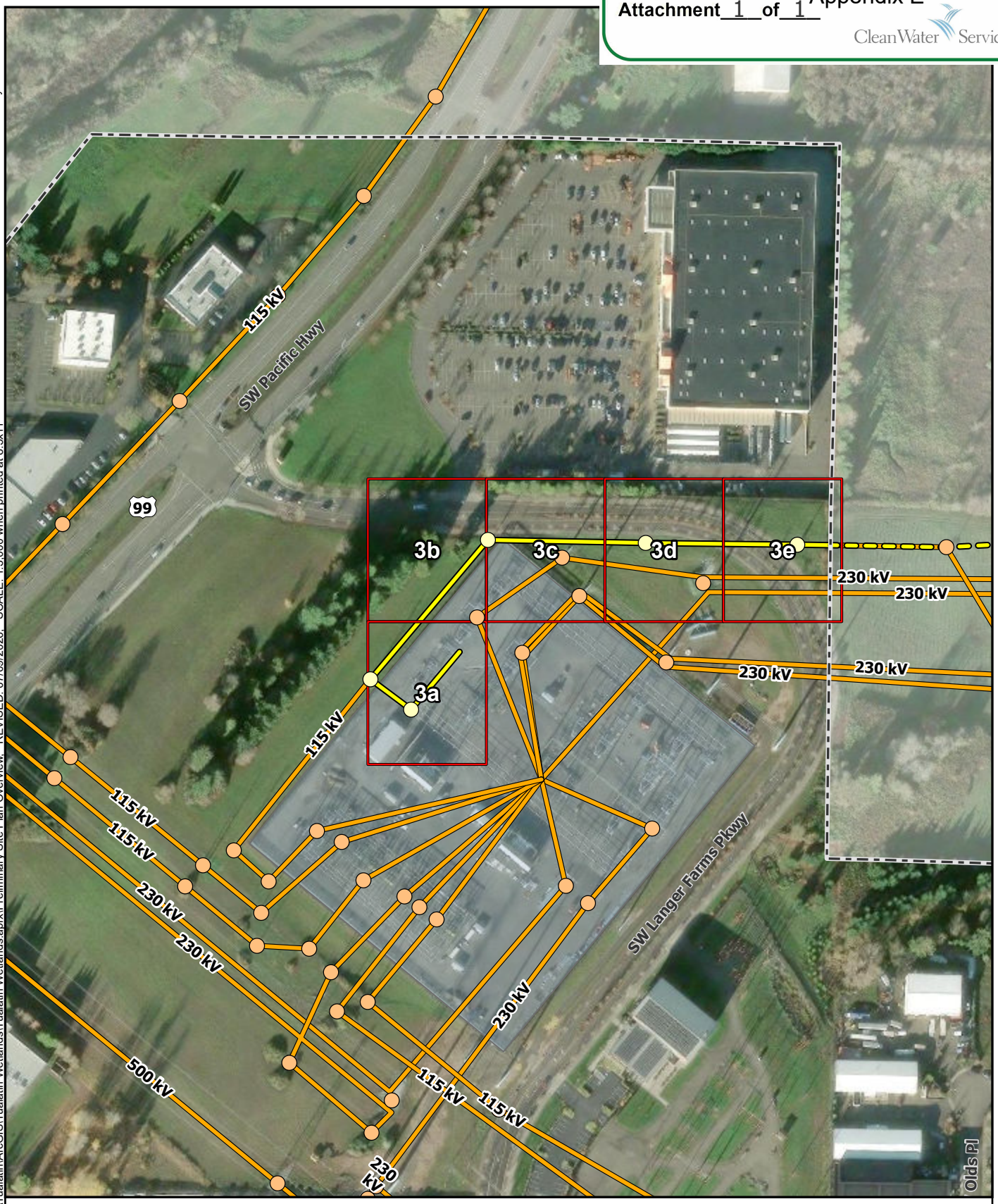
Once complete, email to: **SPLReview@cleanwaterservices.org** • Fax: **(503) 681-4439**
OR mail to: SPL Review, Clean Water Services, 2550 SW Hillsboro Highway, Hillsboro, Oregon 97123

Revised 2/2020

Approved by: Alex Galluzzo
Date 07/23/26
Attachment 1 of 1

Appendix E

Clean Water Services



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands\Tualatin Wetlands.aprx\Preliminary Site Plan Overview, REVISED: 07/09/2026, SCALE: 1:3,000 when printed at 8.5x11

Legend

- Index Area
- Sherwood City Limits
- PGE Sherwood Substation
- Existing Transmission Lines
- Existing Pole
- Replacement Pole
- Proposed Utility Infrastructure
- Proposed Utility Infrastructure (Outside City Limits)

Owner: Portland General Electric Company
Drafted: July 7, 2026

N

0 125 250 500

Feet

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3
Preliminary Site Plan Overview
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands\Tualatin Wetlands.aprx\Preliminary Site Plan MS, REVISED: 07/09/2026, SCALE: 1:360 when printed at 8.5x11

Legend

- Sherwood City Limits
- Taxlots
- Existing Transmission Lines
- Replacement Pole
- Proposed Utility Infrastructure

N

0 15 30 60

Feet

Owner: Portland General Electric Company
Drafted: July 7, 2026

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3a
Preliminary Site Plan Detail
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands aprx\Preliminary Site Plan MS, REVISED: 07/09/2026, SCALE: 1:360 when printed at 8.5x11

Legend

- Sherwood City Limits
- Taxlots
- Existing Transmission Lines
- Existing Pole
- Proposed Utility Infrastructure

N

0 15 30 60

Feet

Owner: Portland General Electric Company
Drafted: July 7, 2026

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3b
Preliminary Site Plan Detail
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands aprx\Preliminary Site Plan MS, REVISED: 07/09/2026, SCALE: 1:360 when printed at 8.5x11

Legend

- Sherwood City Limits
- Taxlots
- Existing Transmission Lines
- Existing Pole
- Replacement Pole
- Proposed Utility Infrastructure

N

0 15 30 60

Feet

Owner: Portland General Electric Company
Drafted: July 7, 2026

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3c
Preliminary Site Plan Detail
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands\Tualatin Wetlands aprx\Preliminary Site Plan MS, REVISED: 07/09/2026, SCALE: 1:360 when printed at 8.5x11

Legend

- Sherwood City Limits
- Taxlots
- Existing Transmission Lines
- Existing Pole
- Replacement Pole
- Proposed Utility Infrastructure

N

0 15 30 60

Feet

Owner: Portland General Electric Company
Drafted: July 7, 2026

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3d
Preliminary Site Plan Detail
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin Wetlands.aprx\Preliminary Site Plan MS, REVISED: 07/09/2026, SCALE: 1:360 when printed at 8.5x11

Legend

- Sherwood City Limits
- Taxlots
- Existing Transmission Lines
- Replacement Pole
- Proposed Utility Infrastructure
- Proposed Utility Infrastructure (Outside City Limits)

N

0 15 30 60

Feet

Owner: Portland General Electric Company
Drafted: July 7, 2026

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Figure 3e
Preliminary Site Plan Detail
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM

APPENDIX F VISUAL SIMULATIONS

PGE Utility Facility
Replacement and Interconnection

Washington County, Oregon

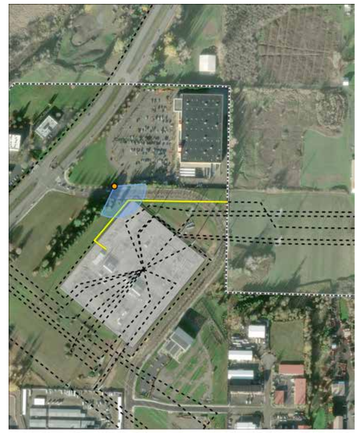
BRIGHTNIGHT
Power when you need it

KOP 102
SW Langer Farms Parkway

Date: 08/14/2026
Time: 10:03 am
Viewing Direction: Southeast
Closest Project feature: 135 feet







KOP = Key Observation Point (Photograph Location)

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual viewpoint.

PGE Utility Facility
Replacement and Interconnection

Washington County, Oregon

BRIGHTNIGHT
Power when you need it

KOP 106

SW Langer Farms Parkway

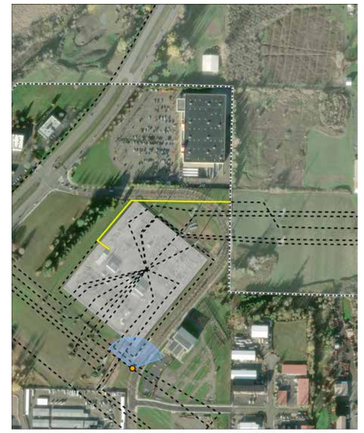
Date: 08/14/2026
Time: 10:44 am
Viewing Direction: North
Closest Project feature: 0.2 miles



EXISTING CONDITIONS



PROPOSED CONDITIONS



KOP = Key Observation Point (Photograph Location)

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual viewpoint.

PGE Utility Facility
Replacement and Interconnection

Washington County, Oregon

BRIGHTNIGHT
Power when you need it

KOP 107
Pacific Highway 99

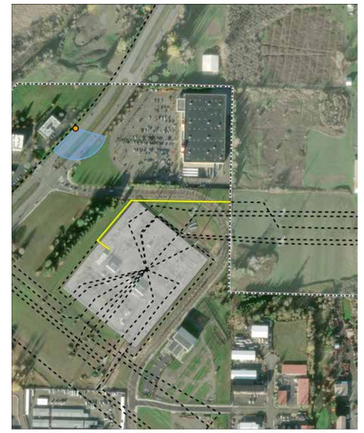
Date: 08/14/2026
Time: 9:34 am
Viewing Direction: South
Closest Project feature: 0.1 miles



EXISTING CONDITIONS



PROPOSED CONDITIONS



KOP = Key Observation Point (Photograph Location)

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual viewpoint.

APPENDIX G EMF STUDY

ELECTROMAGNETIC FIELDS STUDY

1. INTRODUCTION

TUAL bn, LLC (Applicant), a subsidiary of BrightNight, LLC, plans to construct, own, and operate the Nottingham Battery Energy Storage System (BESS), a lithium-ion battery energy storage facility capable of storing and delivering power to the Portland General Electric (PGE) regional transmission grid (Nottingham BESS). The Nottingham BESS is located in Washington County, Oregon, on Tax Lots 2S120D001200 and 2S120D001100, occupying a 12.5-acre site. The Nottingham BESS received its Special Use and Development Review approval from Washington County in May 2025 (Casefile L2400314-SU/D).

The Nottingham BESS will interconnect to PGE's regional transmission grid at the PGE Sherwood Substation, located within the City of Sherwood. An approximately 0.5-mile 230 kilovolt (kV) generation-tie line (gen-tie) will connect the Nottingham BESS to the Sherwood Substation; approximately 1,200 feet of the gen-tie is within the City of Sherwood and will be co-located with PGE's existing 115kV line on new utility infrastructure. Applicant is upgrading existing PGE poles to accommodate approximately 1,200 feet of 230 kV gen-tie along with PGE's existing 115 kV line on up to five utility poles (proposed route). The proposed route for the gen-tie is shown in Figure 1.

This electromagnetic fields (EMF) study evaluates the portion of the gen-tie that is within Sherwood City limits using the Bonneville Power Administration (BPA) Corona and Field Effects Program, Version 3.1 (CAFE31). The report presents results for scenarios G1 through G5 along the 230-kV gen-tie corridor. The study evaluates electric field (EF), magnetic field (MF), radio interference (RI), television interference (TVI), audible noise (AN), corona loss, and ozone. This report includes technical study methods, input assumptions, and modeled results.

2. STUDY APPROACH AND INPUT DATA INVENTORY

The 60% design (referred to as BOD) (Revamp 2026a, 2026b) shows a 230-kV transmission line extending from the Sherwood Substation toward the BESS substation (Figure 2). From TUAL1 through TUAL5, the proposed 230-kV circuit is supported on structures shared with PGE's existing 115-kV circuit and associated all-dielectric self-supporting (ADSS) fiber. At TUAL5, the existing 115-kV circuit taps off toward its existing PGE route, while the proposed 230-kV circuit continues toward the BESS. The transmission-line alignment also crosses SW Langer Farms Parkway between TUAL3 and TUAL4. The 60% design drawings identify the transferred existing 115-kV conductor as 795-kcmil ACSR Drake and state that no shield wire is required for the proposed 230-kV circuit.

The study evaluates representative maximum-sag cross sections used in CAFE31. G1 through G5 represent consecutive transmission-line spans from TUAL1 through TUAL6. For G1 through G4, both the proposed 230-kV circuit and the existing 115-kV circuit are included because both circuits occupy the shared structures. G5 contains only the proposed 230-kV circuit after the 115-

kV circuit departs at TUAL5. The modeled scenarios included in this study are summarized in Table 1, which shows all the details related to tower dimensions. It is graphically illustrated in Figure 4.

The horizontal coordinates used in CAFE31 represent the transverse position of each conductor relative to a common model reference axis and should not be interpreted as span lengths or crossarm dimensions. The 60% LCA/POL geometry for the TUAL3/TUAL4 tangent configuration provides a useful example. In the original POL/design coordinate system, the 230-kV conductor plane is located at approximately −8.6 ft and the 115-kV conductor plane at approximately −5.1 ft, corresponding to a lateral separation of approximately 3.5 ft. The CAFE31 model was recentered so that the 230-kV phase plane is approximately aligned with x = 0, while preserving the same physical separation between the conductor planes.

POL/design coordinate system:

230-kV phase plane ≈ −8.6 ft

115-kV phase plane ≈ −5.1 ft

lateral separation ≈ 3.5 ft

CAFE31 recentered coordinate system:

230-kV phase plane ≈ 0 ft

115-kV phase plane ≈ +3.5 ft

The recentering changes only the coordinate origin and does not change the physical spacing between the conductors. Because the shared structures use predominantly vertical conductor configurations, the individual phases within each circuit are nearly vertically aligned. As a result, the phase-to-phase x-offsets within the 230-kV circuit can be only fractions of a foot, while the larger 115-kV x-offset represents the lateral displacement of the entire 115-kV phase plane relative to the 230-kV phase plane. The actual x- and y-coordinates used in CAFE31 are shown in Figure 4.

The proposed 230-kV circuit is modeled using a 1272-kcmil ACSR Pheasant conductor. The co-located 115-kV circuit is modeled using the existing 795-kcmil ACSR Drake conductor identified in the design documents for transfer to the new steel structures. Although the structures provide accommodation for a future 1272-kcmil ACSS Pheasant 115-kV conductor, the present CAFE evaluation represents the existing Drake conductor and therefore does not model the future conductor configuration. The design drawing package also identifies dedicated 230-kV and 115-kV dead-end, jumper-post, and braced-post assemblies consistent with these conductor types.

ADSS fiber is excluded from the energized conductor set because it does not carry the phase voltage or load current evaluated in the CAFE model. Similarly, no 230-kV shield wire is included because the 60% design basis states that no shield wire is required under the applicable PGE standards.

TABLE 1 MODELED SCENARIOS

Scenario	Span / Segment	Circuits	Design span length (ft)	230-kV x-offsets, top/mid/bot (ft)	230-kV max-sag heights, top/mid/bot (ft)	115-kV x-offsets, top/mid/bot (ft)	115-kV max-sag heights, top/mid/bot (ft)
G1	TUAL1–TUAL2	230+115	359.64	−0.233 / 0.017 / 0.217	109.8 / 95.2 / 80.8	0.567 / 0.717 / 0.867	55.7 / 47.6 / 39.7
G2	TUAL2–TUAL3	230+115	315.89	−0.033 / 0.017 / 0.017	113.2 / 99.7 / 86.4	2.017 / 2.017 / 2.067	61.3 / 53.2 / 45.2
G3	TUAL3–TUAL4	230+115	273.76	0.100 / 0.000 / −0.100	113.6 / 101.6 / 89.6	3.600 / 3.500 / 3.500	65.4 / 57.2 / 49.3
G4	TUAL4–TUAL5	230+115	273.35	0.050 / 0.000 / −0.050	120.7 / 107.2 / 93.7	1.800 / 1.750 / 1.750	68.6 / 60.5 / 52.7

Note: Horizontal x-offsets are measured relative to the CAFE model reference axis. Positive and negative values indicate opposite sides of the reference axis. For G1 through G4, the reference axis is established relative to the 230-kV conductor phase plane. Values are listed in top/middle/bottom phase order.

The G1 through G4 maximum-sag elevations were established from the 60% PNP-1001 plan/profile and corresponding local ground elevations. The PNP-1001 drawing depicts the maximum-operating-temperature ACSR condition as 212°F, no wind, no ice, maximum sag. The resulting span-midpoint heights used by CAFE were independently checked against the available PLS-CADD/PLS-POLE LCA/POL information and the applicable STR, FRM, and LD drawings. The design package identifies PNP-1001, STR-1001 through STR-1006, FRM-1001 through FRM-1006, and LD-1001 through LD-1006 as part of the 60% transmission design set.

The same maximum-sag conductor geometry was retained for all three electrical load cases; therefore, the L1 and L2 evaluations do not take credit for potentially greater conductor clearances associated with lower conductor temperatures.

G1 through G4 each contain six energized phase conductors in CAFE: three phases of the proposed 230-kV circuit and three phases of the existing 115-kV circuit.. Each phase is represented as a single conductor; no bundled subconductors are used. The physical design span lengths shown in Table 1 are important because they influence conductor sag and therefore the maximum-sag conductor elevations. CAFE does not use physical span length as an independent field-calculation input; instead, it uses the resulting two-dimensional conductor coordinates at the representative cross section.

Horizontal conductor locations were established relative to the CAFE reference axis using the reviewed structure/LCA-POL geometry (Revamp 2026c). The three phases of each circuit were assigned phase angles of 0°, −120°, and +120° for the top, middle, and bottom phase positions, respectively. The same positional phase sequence was applied to the 230-kV and 115-kV circuits.

Because the reviewed design information does not establish the actual electrical phase relationship between the two circuits, the relative 230/115-kV phasing should be regarded as a modeling assumption for the shared-circuit scenarios G1 through G4. The current CAFE input documents both the transverse coordinates and this phase-order assumption.

Electrical conductor characteristics and 230-kV loading conditions were obtained from the Revamp Engineering 60% Basis of Design (Revamp 2026a). The modeled 230-kV circuit uses 1272-kcmil ACSR Pheasant conductor with a 1.382-in conductor diameter, and the existing 115-kV circuit uses 795-kcmil ACSR Drake with a 1.108-in conductor diameter. Line-to-ground voltages of 132.791 kV and 66.395 kV were used for the individual 230-kV and 115-kV phase records, respectively, corresponding to nominal line-to-line voltages of 230 kV and 115 kV.

The 60% Basis of Design identifies a 1,057-A steady-state current associated with the anticipated loading, a 1,173.6-A maximum-normal operating current, and a 1,294.7-A emergency/conductor-rated current for the 230-kV circuit. These conditions are designated L1, L2, and L3, respectively, in the CAFE analysis. The Basis of Design also reports an ampacity of 990.65 A for the existing 795-kcmil ACSR Drake conductor. Because a separate operating-current profile for PGE's existing 115-kV circuit was not provided in the reviewed design information, the 990.65-A ampacity of the Drake conductor was used as a conservative ampacity-based screening current for the 115-kV circuit in G1 through G4. The electrical load cases are summarized in Table 2.

TABLE 2 ELECTRICAL LOAD CASES

Load case	Description	230-kV current (kA) (G1-G4)	115-kV ampacity-based screening current (kA) G1-G4
L1	Steady-state loading	1.057	0.99065
L2	Maximum normal operating condition	1.1736	0.99065
L3	Emergency/conductor rated condition	1.2947	0.99065

The 115-kV value in Table 2 is an ampacity-based screening current rather than a documented operating load. Consequently, the 115-kV contribution is intentionally unchanged among L1, L2, and L3.

The L1, L2, and L3 cases differ only in the modeled 230-kV current. Accordingly, electric field and the corona-related quantities—including RI, TVI, AN, conductor gradient, corona loss, and ozone—are unchanged among the three current cases for a given geometry because voltage, conductor geometry, and the environmental inputs used by CAFE remain unchanged. To avoid presenting duplicate results, the L2 Maximum Normal case is used in the main text for these quantities. Magnetic field is presented for L1, L2, and L3 because it varies with current. The detailed CAFE model assumptions, computational settings, and additional model-specific inputs are described in the following section.

2.1 EMF MODEL INPUTS

CAFE31 model was used to calculate power-frequency electric field (EF) and magnetic field (MF), as well as corona-related radio interference (RI), television interference (TVI), audible noise (AN), conductor surface gradient, corona loss, and ozone concentration. Conductor surface gradients were computed internally by CAFE rather than entered by the user. The common model settings used for the G1 through G4 analyses are summarized in Table 3.

CAFE31 represents the overhead transmission line as a transverse, two-dimensional cross-section of parallel conductors above a ground plane. Each energized phase is represented by a conductor record that specifies the horizontal position, conductor or bundle-center height, number and diameter of subconductors, bundle spacing, line-to-ground voltage, phase angle, and current. With the conductor-gradient option set to computed, CAFE calculates conductor surface gradient from the specified electrical and geometric configuration rather than requiring a user-entered gradient.

For a balanced three-phase AC circuit, the phase-to-ground RMS voltage used in the individual conductor records is the nominal line-to-line voltage divided by the square root of three. Accordingly, the modeled phase-to-ground voltages are 132.791 kV for the 230-kV circuit and 66.395 kV for the 115-kV circuit. The top, middle, and bottom phase positions are assigned phase angles of 0°, −120°, and +120°, respectively. For the shared 230/115-kV configurations G1 through G4, the same positional phase sequence is applied to both circuits. Because the reviewed design information does not establish the relative electrical phase relationship between the two circuits, this relative phasing is treated as a modeling assumption.

TABLE 3 KEY CAFE31 MODELING INPUTS AND ASSUMPTIONS

Parameter	Value / Treatment	Basis / Comment
Model	BPA CAFE Version 3.1 (CAFE31)	Study model
Units	English	CAFE input setting
Conductor gradient	Computed by CAFE	Surface gradient not user-entered
230-kV line-to-ground voltage	132.791 kV	230/√3
115-kV line-to-ground voltage	66.395 kV	115/√3
Phase angles	Top / middle / bottom = 0° / −120° / +120°	Modeling phase-sequence assumption
Project elevation input	250 ft	Project design elevation from 60% Basis of Design

Parameter	Value / Treatment	Basis / Comment
Ground conductivity input	6.7 mmhos/m	Study input used for RI/TVI propagation; based on prior Oregon study information
Rain-rate input	2 in/hr	Study-selected CAFE input; not specified by the 60% BOD
Wind input	2 mi/hr	CAFE ozone input; approximately equivalent numerically to the 2.93 ft/s value used in the BOD thermal-rating calculation
AN microphone height	4.921 ft	CAFE observation-height input
RI antenna height	6.562 ft	CAFE observation-height input
TVI antenna height	9.842 ft	CAFE observation-height input
EF sensor height	3.280 ft (1.0 m)	Study evaluation height
MF sensor height	3.280 ft (1.0 m)	Study evaluation height
Ozone sensor height	0 ft	CAFE input
RI summary frequency	1 MHz	CAFE RI reporting input
TVI summary frequency	75 MHz	CAFE TVI reporting input
Lateral calculation profile	−200 ft to +200 ft	Common analysis extent for all reported quantities
Calculation points	100	Includes both −200- and +200-ft endpoints
Calculation-point spacing	4.040404 ft	400 ft / 99 intervals
230-kV conductor	1272-kcmil ACSR Pheasant; 1.382-in diameter; one conductor per phase	60% design basis
115-kV conductor	795-kcmil ACSR Drake; 1.108-in diameter; one conductor per phase	Existing conductor identified for transfer in 60% design basis
230-kV load cases	L1 = 1.0570 kA; L2 = 1.1736 kA; L3 = 1.2947 kA	See Table 2
115-kV ampacity-based screening current	0.99065 kA for G1–G4	Drake ampacity used because a separate operating-current profile was not provided

The BOD supports the 250-ft project elevation and identifies a wind speed of 2.93 ft/s in the conductor thermal-rating calculation, which is approximately 2 mi/hr. The present CAFE setup uses 250 ft and 2 mi/hr, while the ground-conductivity and rain-rate values are separate study/modeling inputs rather than electrical-design parameters from the BOD. The current study also distinguishes the BOD's 2 W/m-K radial thermal conductivity, which is an IEEE 738 conductor thermal property, from the 6.7 mmhos/m electrical ground conductivity used by CAFE.

The sensor-height and frequency inputs in Table 3 follow the CAFE input definitions. EF and MF are evaluated at 3.28 ft (1 m) above ground. AN, RI, and TVI use separate microphone or antenna heights because their empirical corona-effect calculations are referenced to their respective observation heights. RI is summarized at 1 MHz and TVI at 75 MHz. Ground conductivity is used in the interference calculations, while the wind and rain-rate inputs are used in the applicable CAFE corona/ozone routines. The current CAFE output setup confirms the AN, RI, TVI, EF/MF, ozone, frequency, wind, ground-conductivity, and rain-rate fields used in the calculations.

The lateral calculation profile extends from −200 ft to +200 ft (Figure 3) relative to the CAFE reference axis. The current analyses use 100 calculation points at approximately 4 ft spacing, which provides values at both exact endpoints. The same full ±200-ft profile is used for EF, MF, AN, RI, TVI, ozone, and corona-related result summaries. These distances are model coordinates and should not be interpreted as property-line or right-of-way distances unless separately related to surveyed corridor geometry.

Because CAFE is a cross-section model, it does not explicitly reproduce the longitudinal conductor sag curve, steel-pole shape, termination hardware, local buildings or vegetation, or three-dimensional conductor transitions at structures. The maximum-sag midspan cross-section is therefore used as the principal screening location for ground-level field characterization, while the design drawings and line-design files are used to establish and cross-check the conductor coordinates.

3. RESULTS AND DISCUSSION

This section presents the CAFE31 modeling results for the portion of the gen-tie that is within the City of Sherwood. The modeled results include electric field (EF), magnetic field (MF), radio interference (RI), television interference (TVI), audible noise (AN), conductor surface electric-field gradient, corona loss, and ozone generation. Results are evaluated across the modeled lateral profile extending from −200 to +200 ft relative to the CAFE reference axis.

Three electrical loading conditions were evaluated: L1 Steady, L2 Maximum Normal, and L3 Emergency. The only electrical input that changes among these cases is the modeled 230-kV current. Consequently, the electric field and the corona-related outputs are unchanged among L1, L2, and L3 for a given geometry because the operating voltage, conductor geometry, and environmental inputs remain constant. The magnetic field is current-dependent and therefore varies among the loading cases for configurations containing the 230-kV circuit. Accordingly, magnetic-field results are presented for all three load cases, while the L2 Maximum Normal case is used to represent EF and the corona-related outputs in the main discussion.

Results are compared, where applicable, with regulatory criteria, exposure reference levels, and screening or contextual comparison values identified for this study.

3.1 ELECTRIC FIELD

OAR 345-024-0090 establishes an alternating-current electric-field criterion of 9 kV/m at 1 m above ground in areas accessible to the public. Accordingly, the CAFE31 electric- and magnetic-field calculations for this study were evaluated at approximately 3.28 ft (1 m) above ground. Oregon does not establish a corresponding numerical magnetic-field exposure limit for transmission lines. For comparison, the general-public magnetic-field exposure reference levels are 9,040 mG under IEEE C95.1-2019 (IEEE 2019) and 2,000 mG under the ICNIRP (2010) guidelines.

Electric-field magnitude is governed primarily by operating voltage, conductor geometry, and conductor height above ground. Because these parameters are unchanged among L1, L2, and L3, the electric-field results are identical among the three loading cases for each modeled configuration. Table 4 summarizes the modeled electric field at −200 ft and +200 ft from the CAFE reference axis and the maximum value occurring within the modeled ±200-ft profile.

The highest modeled electric field is 0.774 kV/m for G1 (TUAL1–TUAL2). The modeled maximum decreases progressively through G2, G3, G4, with respective maximum values of 0.632, 0.545, and 0.498kV/m. This pattern reflects differences in conductor configuration and maximum-sag clearance among the modeled spans, including the presence of both the 230-kV and 115-kV circuits on the shared structures in G1 through G4.

All modeled maximum electric-field values are substantially below the Oregon 9-kV/m criterion. Electric-field values also decrease markedly with lateral distance from the conductors, with modeled values at ±200 ft ranging from approximately 0.048 to 0.058 kV/m among the evaluated configurations. The ±200-ft values represent the endpoints of the modeled lateral profile and are not intended to represent right-of-way or property-line values unless separately related to site-specific surveyed boundaries.

TABLE 4 ELECTRIC FIELD SUMMARY WITHIN ±200 FT

Scenario	Configuration	Electric Field at −200 ft (kV/m)	Maximum Electric Field (kV/m)	Electric Field at +200 ft (kV/m)
G1	TUAL1–TUAL2	0.058	**0.774**	0.056
G2	TUAL2–TUAL3	0.052	**0.632**	0.053
G3	TUAL3–TUAL4	0.047	**0.545**	0.051
G4	TUAL4–TUAL5	0.048	**0.498**	0.050

Note: Electric field evaluated at 3.28 ft (1 m) above ground. Values shown represent the L2 Maximum Normal case; identical EF results are obtained for L1 and L3 because voltage and conductor geometry are unchanged among the three load cases. Oregon electric-field criterion = 9 kV/m at 1 m above ground in areas accessible to the public (OAR 345-024-0090).

The modeled electric-field profiles for G1 through G4 are shown in Figure 5, Figure 7, Figure 9, and Figure 11, respectively.

3.2 MAGNETIC FIELD

Magnetic-field magnitude depends primarily on conductor current and conductor geometry. For G1 through G4, the modeled 230-kV current increases from L1 Steady through L3 Emergency; therefore, the predicted magnetic fields increase correspondingly. Table 5 summarizes the magnetic field at −200 ft and +200 ft and the maximum magnetic field within the modeled ±200-ft profile for each configuration and loading condition.

The highest modeled magnetic field is 73.29 mG for G1 under the L3 Emergency condition. G1 also produces the highest magnetic-field value for the L1 and L2 cases, with maximum values of 68.53 and 70.87 mG, respectively. The comparatively higher fields for G1 reflect the combined contribution of the 230-kV and 115-kV circuits and the conductor geometry and clearances associated with that span.

Maximum magnetic fields generally decrease from G1 through G4 as the maximum-sag conductor clearances increase and the cross-sectional geometry changes. These results demonstrate the influence of both current and conductor configuration on the predicted ground-level magnetic field.

The maximum predicted magnetic field of 73.29 mG is substantially below both the 2,000-mG ICNIRP general-public reference level and the 9,040-mG IEEE C95.1-2019 general-public reference level. Magnetic-field strength also decreases substantially with lateral distance from the transmission line, with all modeled values at ±200 ft well below the maximum values occurring closer to the conductors.

TABLE 5 MAGNETIC FIELD SUMMARY WITHIN ±200 FT

Scenario	Load Case	Magnetic Field at −200 ft (mG)	Maximum Magnetic Field (mG)	Magnetic Field at +200 ft (mG)
G1	L1 Steady	5.59	**68.53**	5.63
G1	L2 Maximum Normal	5.98	**70.87**	6.02
G1	L3 Emergency	6.39	**73.29**	6.42
G2	L1 Steady	5.24	**55.06**	5.32
G2	L2 Maximum Normal	5.59	**57.01**	5.68
G2	L3 Emergency	5.96	**59.03**	6.05
G3	L1 Steady	4.85	**46.88**	4.99
G3	L2 Maximum Normal	5.16	**48.55**	5.31
G3	L3 Emergency	5.49	**50.29**	5.64

Scenario	Load Case	Magnetic Field at −200 ft (mG)	Maximum Magnetic Field (mG)	Magnetic Field at +200 ft (mG)
G4	L1 Steady	5.12	**43.10**	5.19
G4	L2 Maximum Normal	5.47	**44.79**	5.54
G4	L3 Emergency	5.83	**46.54**	5.90

Note: Magnetic field evaluated at 3.28 ft (1 m) above ground. General-public reference levels shown for comparison are 2,000 mG (ICNIRP 2010) and 9,040 mG (IEEE 2019).

The modeled magnetic field profiles for G1 through G4 are shown in Figure 6, Figure 8, Figure 10, and Figure 12, respectively.

3.3 RADIO INTERFERENCE

Modeling results for radio interference (RI), expressed as L50 levels, are summarized in Table 6. RI is reported at 1 MHz, consistent with the CAFE31 model setup and within the AM broadcast frequency range commonly considered in transmission-line RI evaluations. IEEE Std 430-2017 (IEEE 2017) provides standardized procedures for measuring corona-related radio noise from overhead power lines and substations; however, it does not establish a single universal acceptable RI field-strength limit applicable to the modeled results. Accordingly, the RI results are presented to characterize the relative magnitude of potential corona-related interference and its attenuation with lateral distance from the transmission line.

During rainy conditions, the maximum modeled RI ranges from 32.7 to 57.1 dBμV/m for the evaluated transmission-line configurations. G3 produces the highest maximum rainy-weather RI level of 57.1 dBμV/m, followed by G2 at 56.1 dBμV/m. At ±200 ft from the CAFE reference axis, rainy-weather RI ranges from 16.0 to 45.8 dBμV/m, demonstrating substantial attenuation with increasing lateral distance from the conductors.

Under fair-weather conditions, maximum RI ranges from 38.5 to 40.1 dBμV/m, with values at ±200 ft ranging from 26.4 to 28.8 dBμV/m. Fair-weather RI is substantially lower than rainy-weather RI for all modeled configurations, consistent with the increased corona activity expected when conductor surfaces are wet.

The potential for actual interference at a particular radio receiver depends not only on the transmission-line radio-noise field strength but also on the strength of the desired broadcast signal, the resulting signal-to-noise ratio, receiver characteristics, and local reception conditions. Therefore, the CAFE31 RI results are used in this study to characterize the relative potential for transmission-line-generated radio noise rather than to demonstrate compliance with a numerical RI criterion.

TABLE 6 RADIO-INTERFERENCE SUMMARY AND COMPARISON LEVEL

Scenario	RI Rain max within ±200 (dBµV/m)	RI Rain at ±200 (dBµV/m)	RI Fair max within ±200 (dBµV/m)	RI Fair at ±200 (dBµV/m)
G1	55.6	43.4	38.6	26.4
G2	56.1	44.5	39.1	27.5
G3	57.1	45.8	40.1	28.8
G4	55.5	44.9	38.5	27.9

Note: RI reported as L50 at 1 MHz. "At ±200 ft" represents the greater of the values at the −200-ft and +200-ft endpoints. The 56-dBµV/m value is used as a screening comparison and is not an Oregon regulatory limit.

3.4 TELEVISION INTERFERENCE

Modeling results for television interference (TVI) are summarized in Table 7. TVI is reported at 75 MHz, consistent with the CAFE31 model setup. IEEE Std 430-2017 includes television-broadcast frequency bands within the scope of standardized power-line radio-noise measurements, but no single numeric TVI acceptance criterion directly applicable to the CAFE31 75-MHz results was identified for this study. Accordingly, the modeled values are presented to characterize the relative potential for interference and its attenuation with lateral distance from the transmission line.

The maximum modeled TVI levels range from 12 to 13.8 dBµV/m among the evaluated configurations, with G3 producing the highest value. At ±200 ft, TVI ranges from 4.3 to 6.2 dBµV/m. In all configurations, modeled TVI decreases substantially with increasing lateral distance from the transmission line.

Negative values in dBµV/m do not represent a negative physical electric-field strength. Because dBµV/m is expressed logarithmically relative to 1 µV/m, values below 0 dBµV/m indicate modeled interference field strengths of less than 1 µV/m.

TABLE 7 TELEVISION-INTERFERENCE SUMMARY

Scenario	TVI max within ±200 (dBµV/m)	TVI at ±200 (dBµV/m)
G1	12.4	4.3
G2	12.8	5
G3	13.8	6.2
G4	12	4.9

Note: TVI is reported at 75 MHz. The value reported "at ±200 ft" represents the greater of the modeled values at the −200-ft and +200-ft endpoints. No directly applicable numeric TVI acceptance criterion was identified for this study.

3.5 AUDIBLE NOISE

CAFE31 predicts corona-generated audible noise (AN) as L50 values for rainy- and fair-weather conditions. The "A" in dBA refers to A-weighting, a standardized frequency weighting that accounts for the frequency-dependent sensitivity of human hearing. Table 8 summarizes the maximum modeled AN within the ±200-ft analysis profile and the AN level at ±200 ft for each transmission-line configuration.

For context, OAR 340-035-0035 establishes statistical noise limits applicable to certain industrial and commercial noise sources, including L50 values of 55 dBA during daytime hours and 50 dBA during nighttime hours at applicable noise-sensitive measurement locations (OAR 340-035-0035). The CAFE31 results presented in Table 8 characterize only corona-generated transmission-line noise as a function of lateral distance and do not constitute a receptor-specific noise compliance analysis. Accordingly, the Oregon values are presented as contextual comparison levels rather than project-specific compliance criteria.

During rainy conditions, the maximum modeled AN ranges from 39.1 to 40.5 dBA for the evaluated configurations, with G3 producing the highest value. At ±200 ft, rainy-weather AN ranges from 34.5 to 36.2 dBA. Under fair-weather conditions, maximum AN ranges from 14.1 to 15.5 dBA, with values at ±200 ft ranging from 9.5 to 11.2 dBA. The higher predicted levels under rainy conditions reflect increased corona activity associated with wet conductor surfaces.

All modeled rainy- and fair-weather AN levels shown in Table 8 are below the 50-dBA nighttime and 55-dBA daytime L50 values used for contextual comparison.

TABLE 8 AUDIBLE-NOISE SUMMARY

Scenario	AN rain max within ±200 (dBA)	AN rain at ±200 (dBA)	AN fair max within ±200 (dBA)	AN fair at ±200 (dBA)
G1	39.1	34.5	14.1	9.5
G2	39.6	35.2	14.6	10.2
G3	40.5	36.2	15.5	11.2
G4	39.1	35.1	14.1	10.1

Note: AN values are CAFE31 corona-noise L50 predictions. The value reported "at ±200 ft" represents the greater of the modeled values at the −200-ft and +200-ft endpoints.

3.6 CORONA LOSS AND OZONE

CAFE31 was used to evaluate conductor surface electric-field gradient, corona loss, and ozone generation for each modeled transmission-line configuration. Corona occurs when the electric-field intensity at the conductor surface becomes sufficiently high to ionize the surrounding air. Corona activity can result in radio interference, television interference, audible noise, electrical energy loss, and the generation of small quantities of ozone. Table 9 summarizes the maximum conductor surface gradient, total corona loss, and maximum modeled ozone concentration for each evaluated configuration.

Conductor surface gradient and corona loss are presented as characteristics of the modeled line configurations rather than compared with a single regulatory threshold. Modeled ozone concentrations are compared for context with the U.S. Environmental Protection Agency (EPA) ozone National Ambient Air Quality Standard (NAAQS) level of 70 ppb and the World Health Organization (WHO) 2021 air-quality guideline of 100 μg/m³ for the daily maximum 8-hour mean, which is approximately 50 ppb under standard reference conditions (EPA 2020; WHO 2021). These ambient-air values have averaging periods and regulatory forms that differ from the localized incremental ozone concentrations calculated by CAFE31; therefore, the comparison is provided to indicate relative magnitude and does not represent an ambient-air-quality compliance determination.

As summarized in Table 9, the maximum modeled conductor surface gradient ranges from 14.06 to 14.59 kV/cm, while total corona loss ranges from 14.050 to 17.309 kW/mi. G3 produces both the highest modeled surface gradient, at 14.59 kV/cm, and the highest corona loss, at 17.309 kW/mi.

Maximum modeled ozone concentrations range from approximately 0.458 ppb for G1 to 0.632 ppb for G3. The locations of the maximum ozone concentrations shown in Table 9 indicate that the CAFE31 spatial maxima occur near the transmission line and above ground for the evaluated configurations. Even the highest modeled incremental ozone concentration of 0.632 ppb is very small relative to the USEPA and WHO ambient-air contextual values. The results therefore indicate that ozone generated by transmission-line corona represents a very small incremental contribution under the modeled conditions.

TABLE 9 CORONA-LOSS AND OZONE SUMMARY

Scenario	Max gradient (kV/cm)	Total corona loss (kW/mi)	Max ozone (ppb)	Lateral location of maximum ozone (ft)	Height of maximum ozone (ft)
G1	14.06	14.050	0.458	15	90
G2	14.28	15.293	0.485	15	105
G3	14.59	17.309	0.632	15	105
G4	14.26	15.161	0.531	15	105

Note: CAFE31 ozone values represent modeled incremental ozone generated by transmission-line corona.

4. CONCLUSION

The CAFE31 evaluation presented in this report covers scenarios G1 through G4 for the portion of the Nottingham BESS gen-tie line within the City of Sherwood. G1 through G4 represent the shared-structure portions of the corridor where the proposed 230-kV gen-tie is modeled together with PGE's existing 115-kV circuit.

The modeled electric- and magnetic-field profiles show the expected highest values near the conductor configurations and substantial attenuation with increasing lateral distance. The electric field remains unchanged among the L1 Steady, L2 Maximum Normal, and L3 Emergency cases

because operating voltage and conductor geometry are unchanged. The highest modeled electric field is 0.774 kV/m for G1, substantially below the Oregon criterion of 9 kV/m at 1 m above ground in areas accessible to the public.

Magnetic field varies with conductor current for G1 through G4 and generally increases from L1 through L3. The highest modeled magnetic field is 73.29 mG for G1 under the L3 Emergency condition, substantially below the general-public reference levels of 2,000 mG identified by ICNIRP and 9,040 mG identified by IEEE C95.1-2019. Across the evaluated G1 through G4 configurations, maximum modeled magnetic fields range from 46.54 mG to 73.29 mG.

The radio-interference evaluation indicates that rainy-weather RI is higher than fair-weather RI for all evaluated configurations, reflecting the increased corona activity associated with wet conductor surfaces. The highest modeled rainy-weather RI is 57.1 dBµV/m for G3, while the highest fair-weather RI is 40.1 dBµV/m, also for G3. RI levels decrease substantially with lateral distance, with rainy-weather values at ±200 ft ranging from 43.4 to 45.8 dBµV/m. Because no single numeric RI acceptance criterion directly applicable to the CAFE31 results was identified, the modeled values are presented to characterize the relative potential for transmission-line-generated radio noise and its attenuation with distance.

CAFE31-predicted corona-generated audible noise is also low for the evaluated configurations. Rainy-weather levels are higher than fair-weather levels, reflecting the increased corona activity associated with wet conductor surfaces. The highest modeled AN value is 40.5 dBA for G3 under rainy conditions. All modeled values are below the Oregon L50 values of 55 dBA during daytime and 50 dBA during nighttime used in this report for contextual comparison. Because the CAFE31 calculations represent corona-generated transmission-line noise as a function of lateral distance rather than a receptor-specific community-noise assessment, these comparisons are provided for context and are not presented as a site-specific noise compliance determination.

The modeled conductor surface gradients and corona losses are likewise modest for the evaluated G1 through G4 configurations. G3 produces the highest surface gradient and corona loss, at 14.59 kV/cm and 17.31 kW/mi, respectively, while G1 produces the lowest values, at 14.06 kV/cm and 14.05 kW/mi. Maximum modeled incremental ozone concentrations range from approximately 0. 458 ppb for G1 to 0.632 ppb for G3. These values are very small relative to the USEPA ozone NAAQS level of 70 ppb and the WHO 2021 short-term air-quality guideline of 100 µg/m³ for the daily maximum 8-hour mean (approximately 50 ppb). Because the ambient-air reference values use averaging periods and regulatory forms that differ from the localized incremental concentrations calculated by CAFE31, the comparison is provided to demonstrate relative magnitude rather than as an ambient-air-quality compliance determination.

Overall, the CAFE31 results indicate that the modeled electric fields are well below the applicable Oregon electric-field criterion and that modeled magnetic fields are well below the IEEE and ICNIRP general-public reference levels. Corona-related RI, TVI, AN, corona loss, and ozone effects are generally greatest for the shared 230-kV/115-kV configurations, particularly G3 for several corona-related outputs, and decrease with lateral distance from the transmission line.

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Revamp 2026b. Tualatin BESS 230 kV Transmission Line – 60% Transmission Design Drawings*.* Revamp Engineering, Inc. *2026.* July 2026.

Revamp 2026c. Revamp Engineering/project PLS-CADD and PLS-POLE LCA/POL line-design files, 60% design, July 2026.

FIGURES

FIGURE 1 NOTTINGHAM BESS TRANSMISSION LINE ROUTE AND STRUCTURE IDENTIFIERS

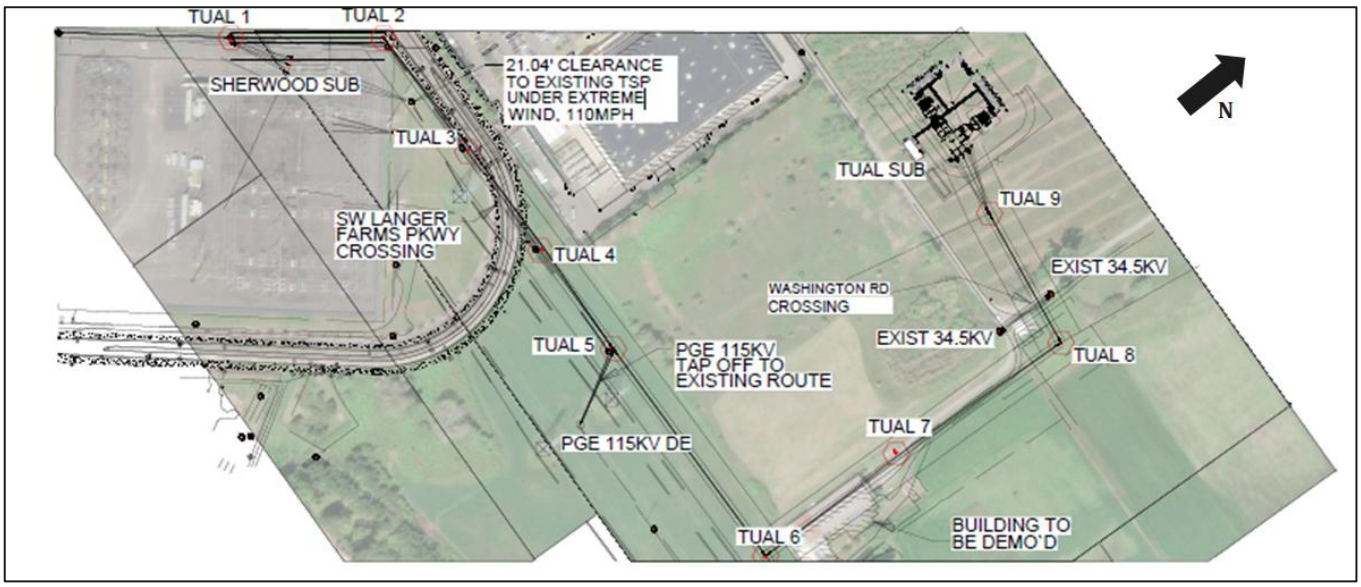


FIGURE 2 CONCEPTUAL ROUTE INCLUDED IN THE STUDY SCOPE (G1 THROUGH G4)

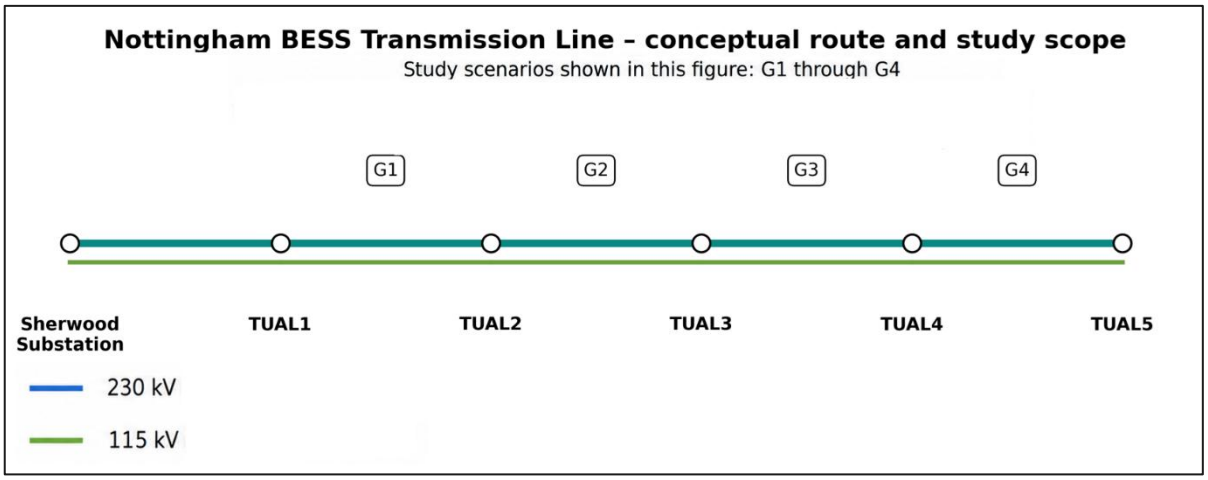


FIGURE 3 CAFE31 LATERAL MODELING AND REPORTING EXTENTS

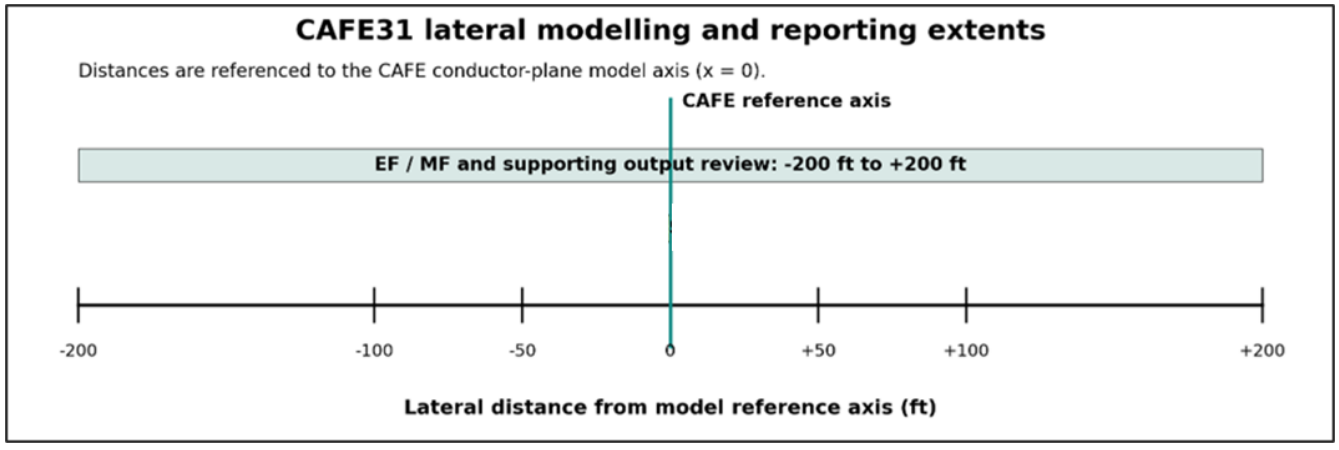


FIGURE 4 CAFE31 CONDUCTOR CROSS-SECTION GEOMETRY FOR G1 TO G4

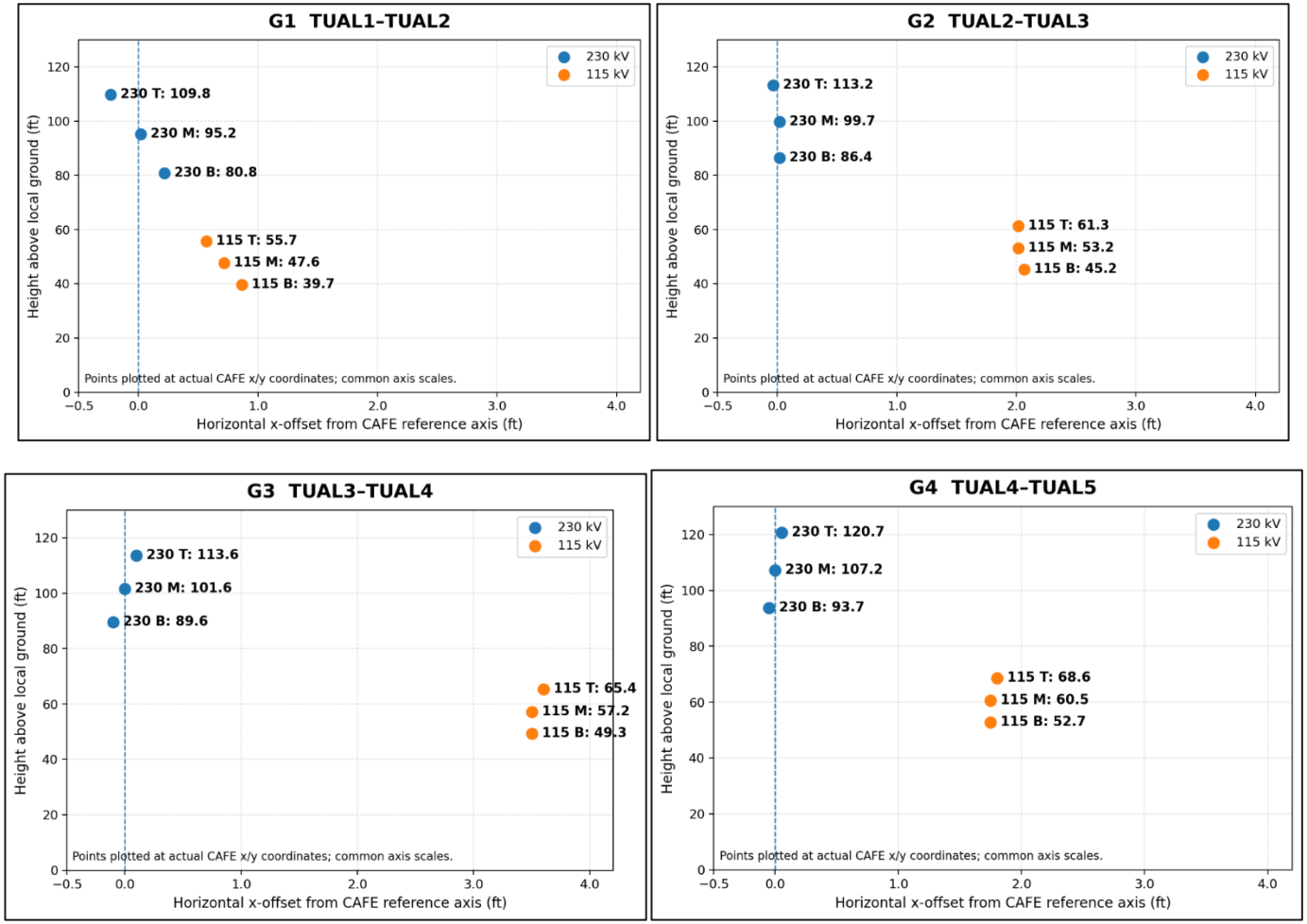


FIGURE 5 G1 ELECTRIC-FIELD PROFILE

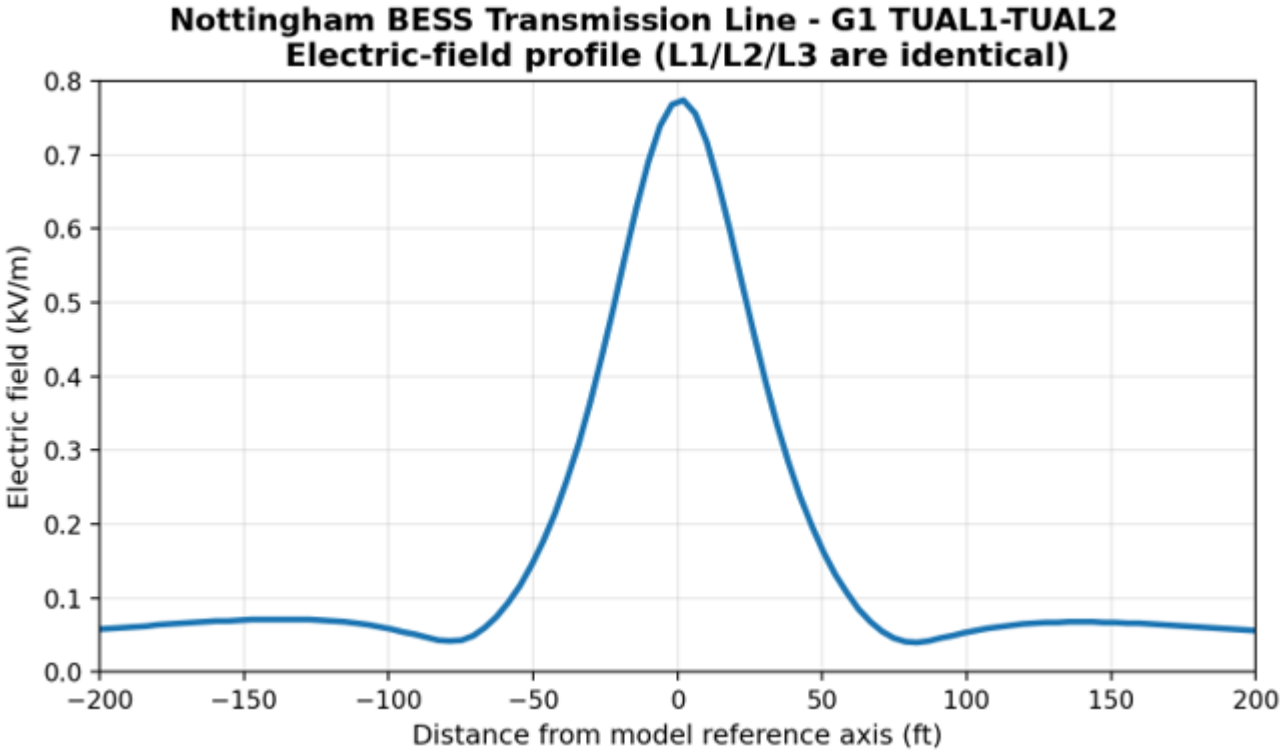


FIGURE 6 G1 MAGNETIC-FIELD PROFILE

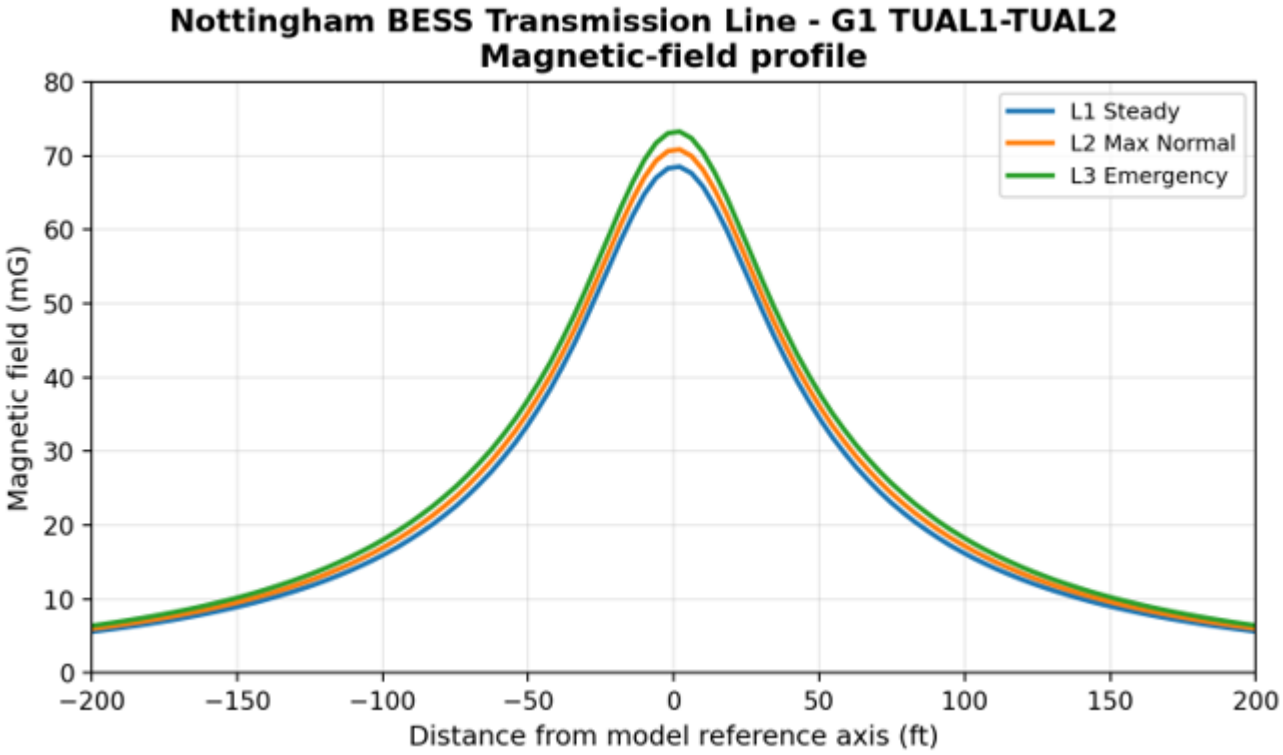


FIGURE 7 G2 ELECTRIC-FIELD PROFILE

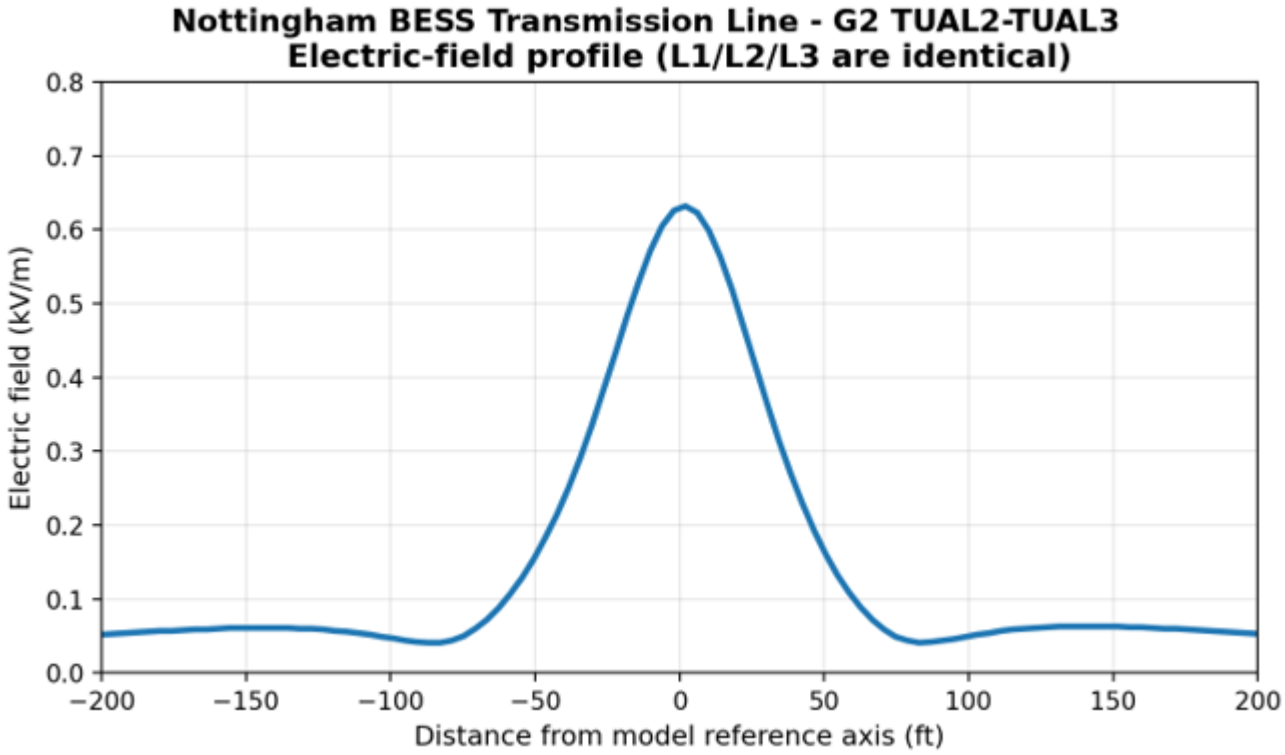


FIGURE 8 G2 MAGNETIC-FIELD PROFILE

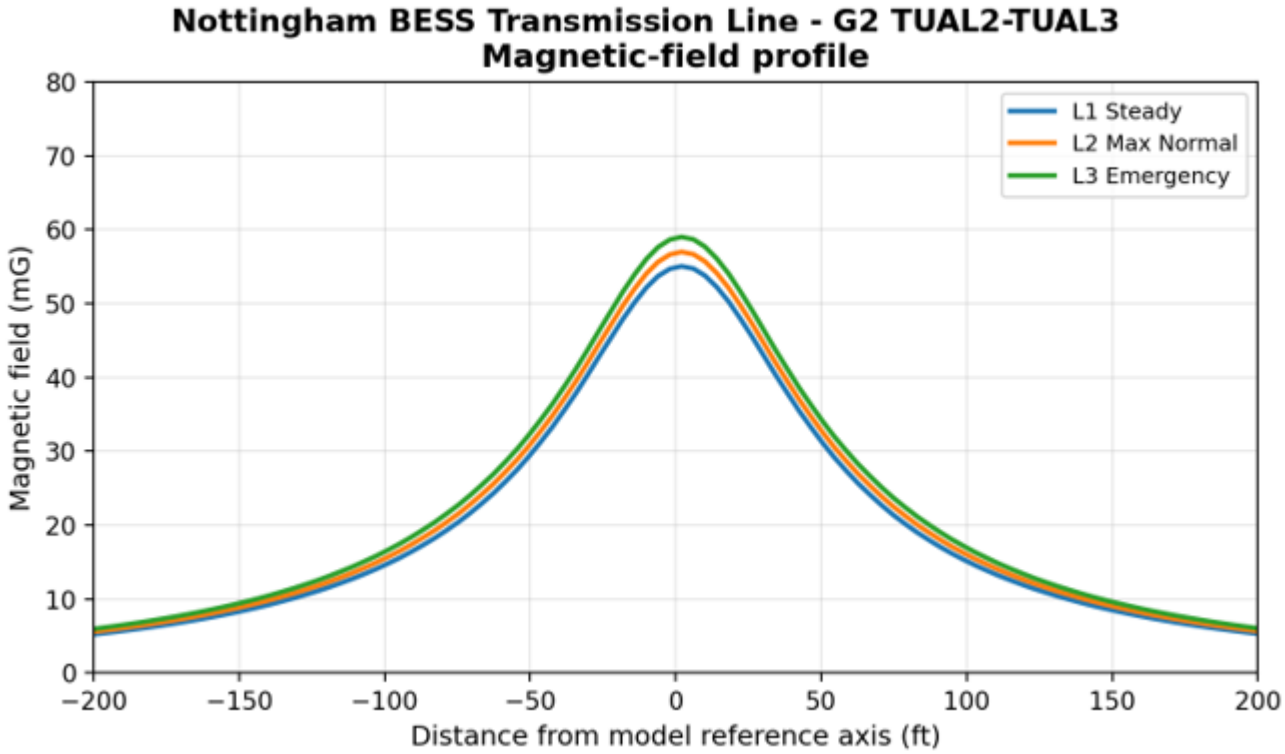

Nottingham BESS Transmission Line - G2 TUAL2-TUAL3
Magnetic-field profile
L1 Steady
L2 Max Normal
L3 Emergency
Magnetic field (mG)
Distance from model reference axis (ft)
80
70
60
50
40
30
20
10
0
−200
−150
−100
−50
0
50
100
150
200

FIGURE 9 G3 ELECTRICAL PROFILE

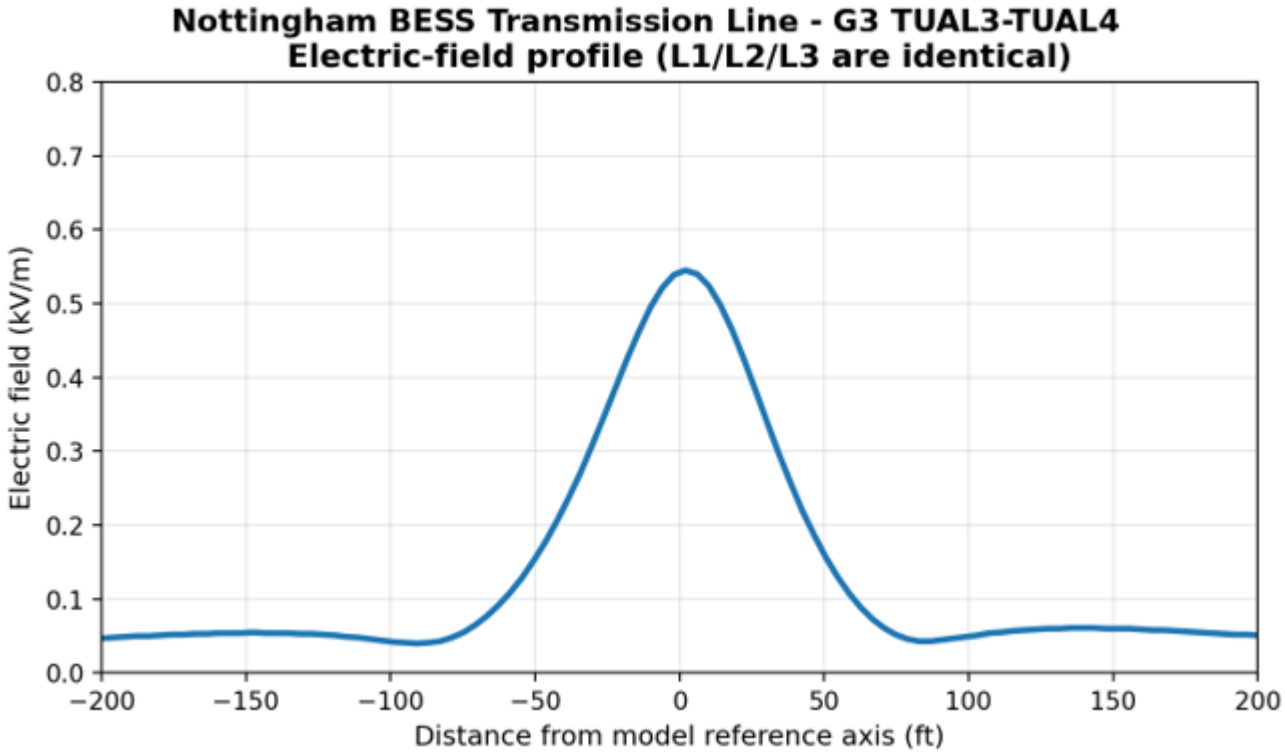


FIGURE 10 G3 MAGNETIC FIELD PROFILE

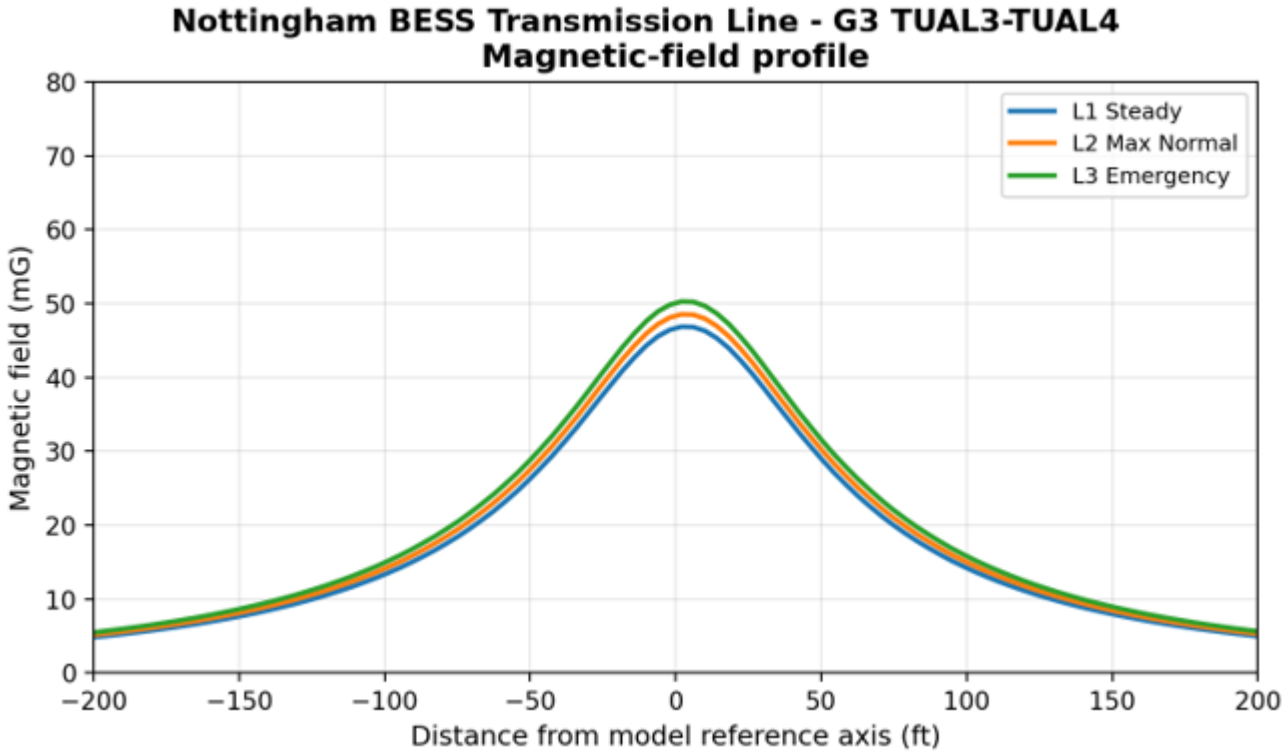


FIGURE 11 G4 ELECTRIC FIELD PROFILE

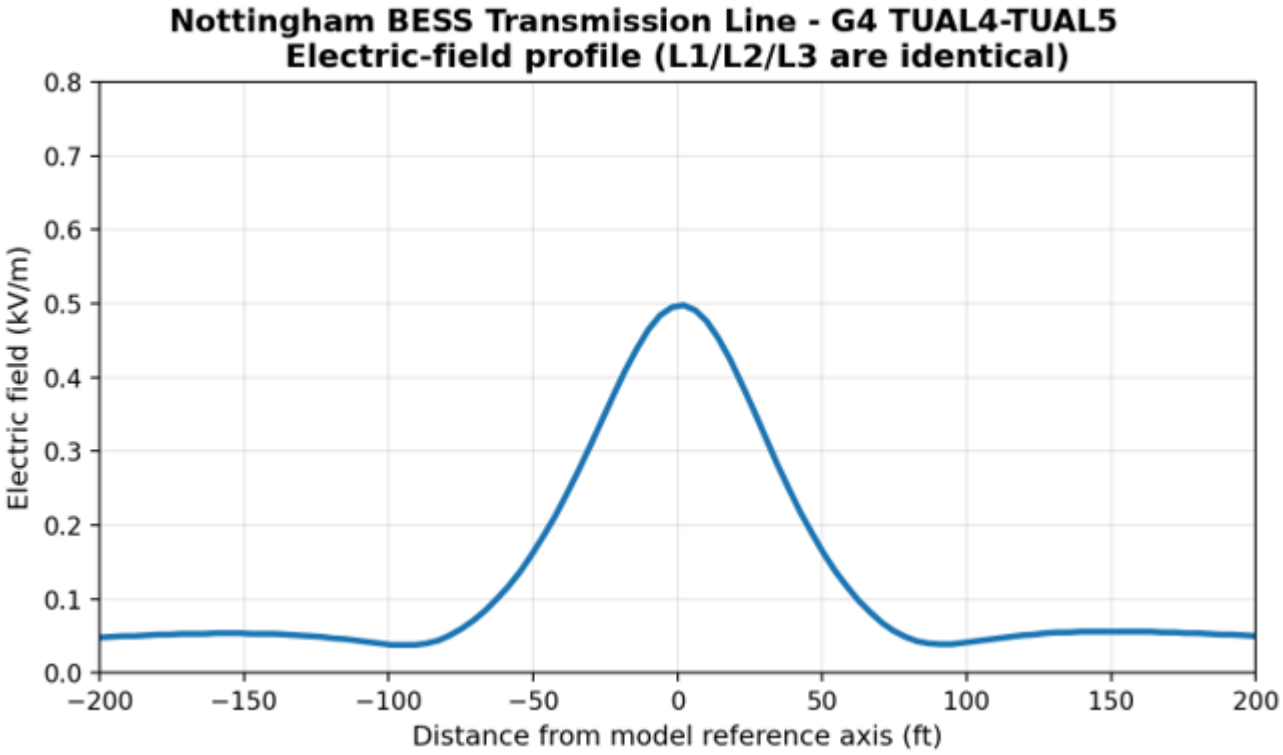
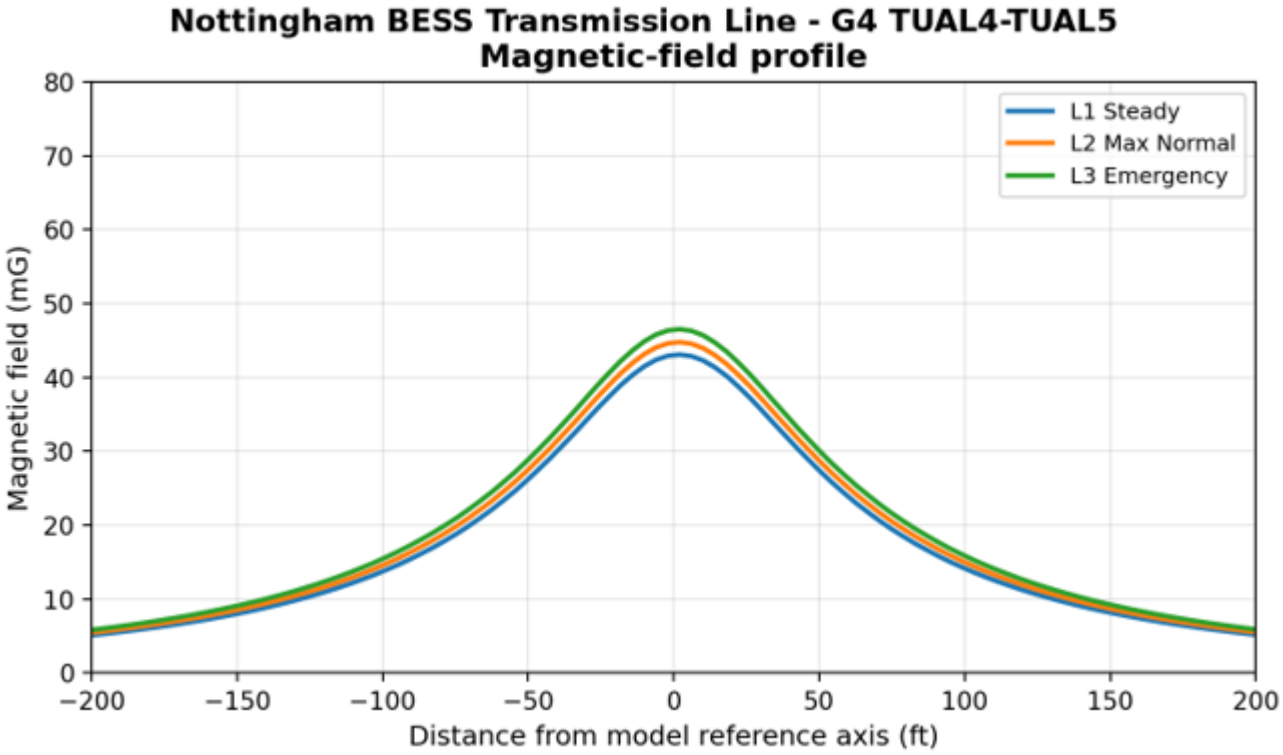


FIGURE 12 G4 MAGNETIC FIELD PROFILE



ERM HAS OVER 140 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

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India
Indonesia
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Italy
Japan
Kenya
Malaysia
Mexico
Mozambique
Netherlands
Panama
Peru
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Portugal
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Vietnam

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APPENDIX H AVIAN COLLISION RISK ASSESSMENT

PGE Utility Facility Replacement and Interconnection

Avian Collision Risk Assessment

DATE
August 2026

REFERENCE
0834897



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ACRONYMS AND ABBREVIATIONS

Acronym	Description
APLIC	Avian Power Line Interaction Committee
Applicant	TUAL bn, LLC
BESS	Battery Energy Storage System
City	City of Sherwood
ERM	Environmental Resources Management Inc.
gen-tie	generation-tie
IBA	Important Bird Area
kV	kilovolt
NABCI	North American Bird Conservation Initiative
NWR	National Wildlife Refuge
OCS	Oregon Conservation Strategy
ODFW	Oregon Department of Fish and Wildlife
ORBIC	Oregon Biodiversity Information Center
PGE	Portland General Electric
USFWS	United States Fish and Wildlife Service

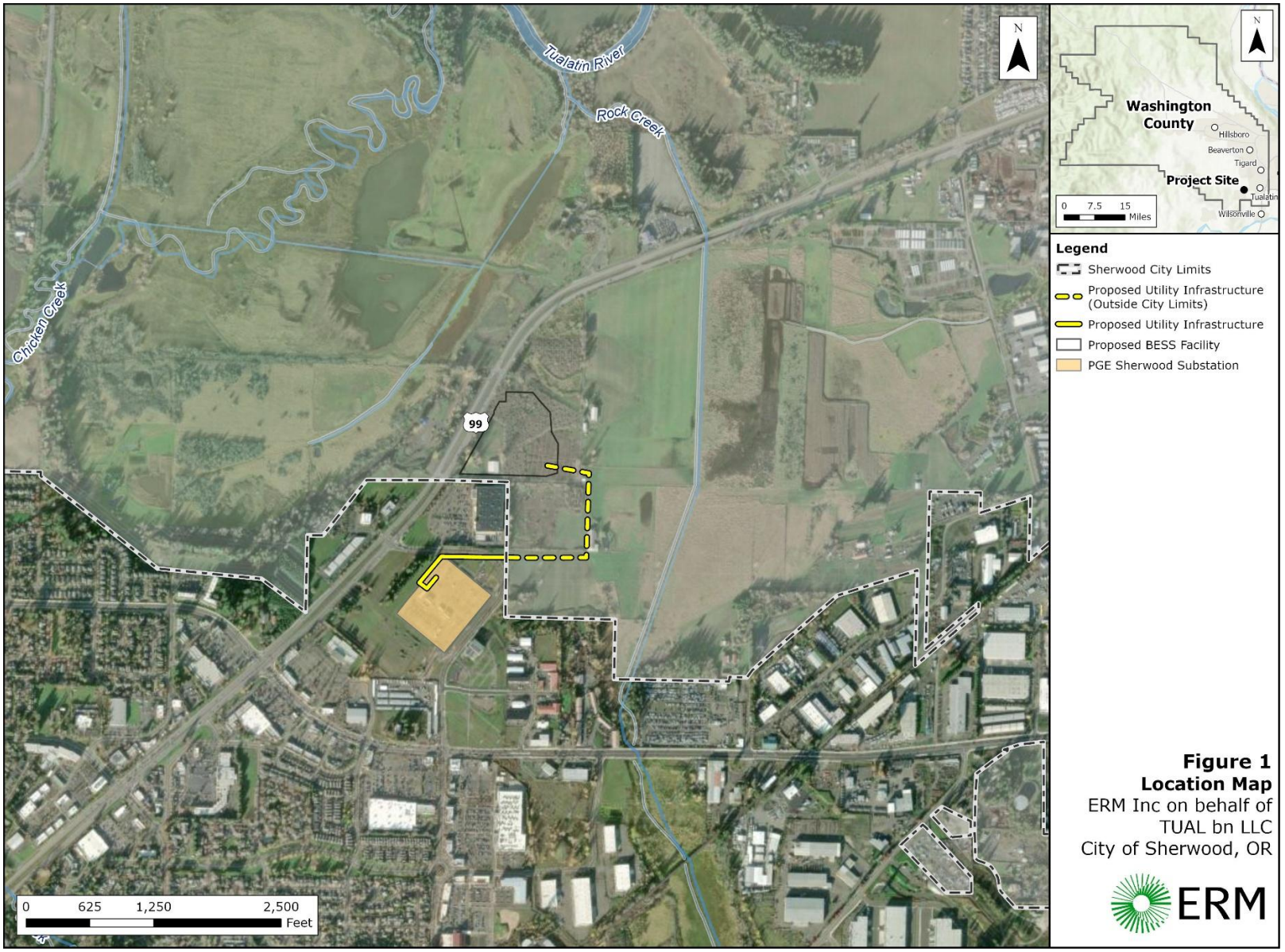
1. INTRODUCTION

TUAL bn, LLC (Applicant), a subsidiary of BrightNight, LLC, is proposing to develop the Nottingham Battery Energy Storage System (BESS) Project (Project) located in Washington County, Oregon (Figure 1). The Project is a lithium-ion battery energy storage facility capable of storing and delivering power to the Portland General Electric (PGE) regional transmission grid. The Project is on Tax Lots 2S120D001200 and 2S120D001100 and will occupy a 12.5-acre site. The Nottingham BESS received its Special Use and Development Review approval from Washington County in May 2025 (Casefile L2400314-SU/D) with construction anticipated in 2028.

The Nottingham BESS will interconnect to PGE's regional transmission grid at the PGE Sherwood Substation, located within the City of Sherwood (the City). An approximately 0.5-mile (2,640 feet) 230 kilovolt (kV) generation-tie line (gen-tie) will connect the proposed Nottingham BESS to the Sherwood Substation; approximately 1,200 feet of the gen-tie is within the City of Sherwood and will be co-located on PGE's existing utility infrastructure. The Applicant is upgrading existing PGE poles to accommodate the approximately 1,200 feet of 230 kV gen-tie along with PGE's existing 115 kV line on up to five utility poles (proposed route). The proposed route for the gen-tie is shown in Figure 1. Section 6.1 of this report describes the proposed gen-tie alignment and design within the City of Sherwood.

The Applicant requested Environmental Resources Management Inc. (ERM) to prepare an avian collision risk assessment for the portion of the proposed gen-tie line that is located within the City of Sherwood limits and subject to the City's Conditional Use Permit and Site Plan review. This assessment utilizes a qualitative approach that integrates available biological information, site-specific observations, habitat characteristics, species occurrence data, and accepted industry guidance to characterize avian risk associated with the proposed gen-tie

FIGURE 1 PROJECT LOCATION



2. REGULATORY CONTEXT

The Project is subject to a variety of federal, state, and local regulations intended to conserve migratory birds, protected wildlife species, and their habitats.

2.1 FEDERAL REGULATIONS

The following federal regulations are applicable to the Project:

- The Migratory Bird Treaty Act (16 U.S.C. §§ 703-712) protects migratory birds, their nests, eggs, and parts. The Migratory Bird Treaty Act applies to most native bird species that may occur within the Project area, including waterfowl, waterbirds, raptors, shorebirds, and passerines.
- The Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d) prohibits the unauthorized take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), including actions that may disturb, injure, or kill eagles.
- The Endangered Species Act (16 U.S.C. §§ 1531-1544) provides protection for species listed as threatened or endangered and for designated critical habitat.

2.2 STATE REGULATIONS

The following state regulations are applicable to the Project:

- Oregon protects certain wildlife species under the Oregon Revised Statutes 496.171-496.192, which states that the Fish and Wildlife Commission, through the Oregon Department of Fish and Wildlife (ODFW) has the authority to designate species of wildlife as endangered or as protected species, which also includes threatened and sensitive species. Consistent with Oregon's Sensitive Species Rule (OAR 635-100-0040), "Sensitive" species are defined as having small or declining populations, are at-risk, and/or are of management concern; "Sensitive-Critical" species are of particular concern and further population decline may warrant threatened or endangered status.
- The Oregon Conservation Strategy (OCS) is an overarching state strategy for conserving fish and wildlife in the state of Oregon. It provides a shared set of priorities for addressing Oregon's conservation needs. The Conservation Strategy identifies 58 bird Strategy Species. Strategy Species are species of greatest conservation need defined as having small or declining populations, are at-risk, and/or are of management concern. OCS emphasizes proactive conservation through voluntary actions to prevent species from becoming imperiled and reduce the need for future listings under the Endangered Species Act.

3. STUDY AREA

The proposed gen-tie is within a developed utility corridor in an area characterized by existing electrical infrastructure as well as nearby prior agricultural, light industrial, and commercial development. The PGE Sherwood Substation and the portion of the gen-tie that are within City limits are within the Adams Avenue North Concept Plan regional urban growth boundary (City of Sherwood 2026).

The area represents a transition between existing utility infrastructure and surrounding habitats: existing substations, powerlines, and industrial development limit local avian use patterns, while nearby wetland and riparian habitat and prior agricultural land provide foraging, roosting, and nesting resources for birds (Figure 2).

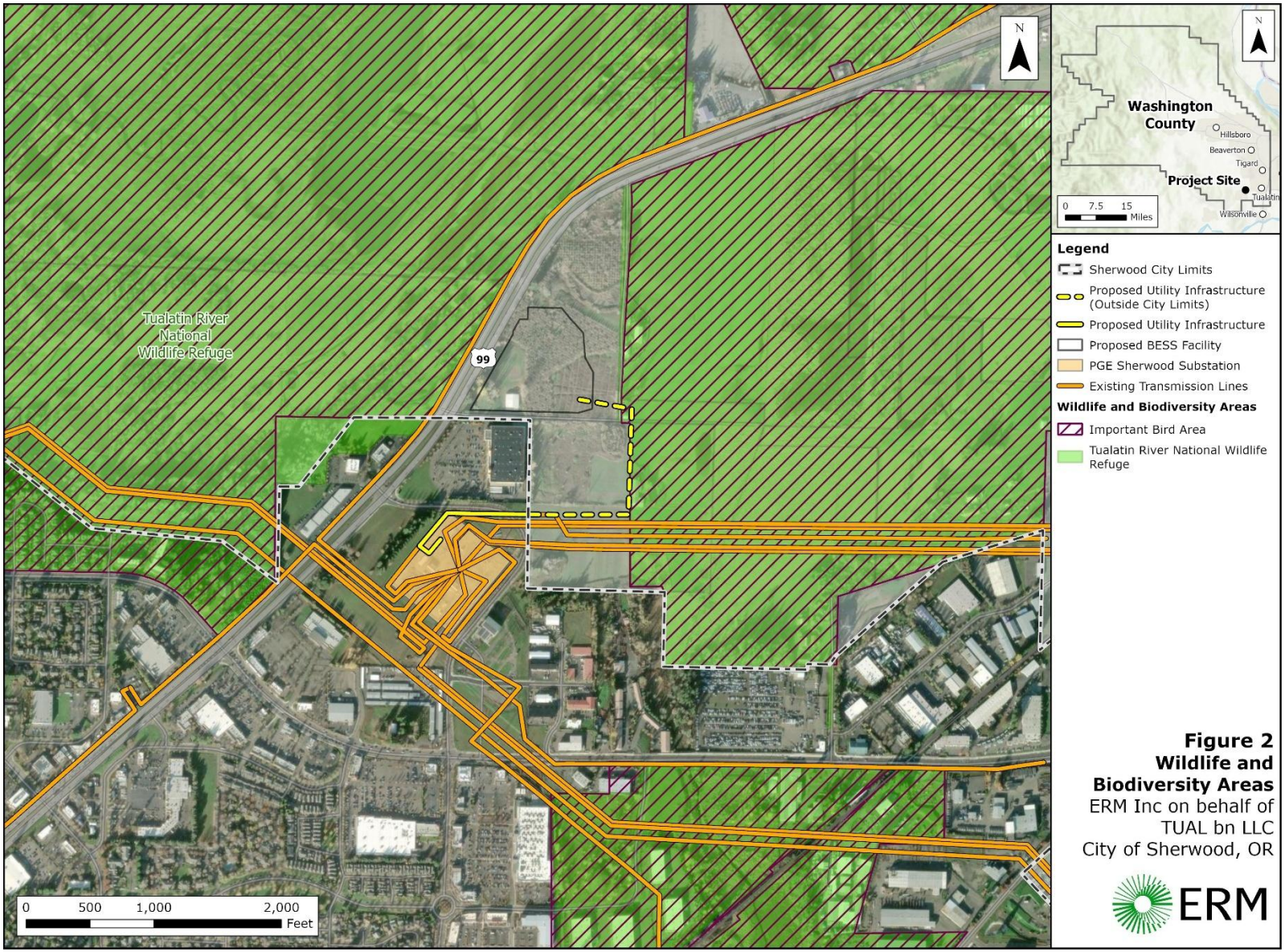
The proposed gen-tie is within the ODFW Tualatin River Conservation Opportunity Area, but it is not within ODFW mapped wetland key habitat (ODFW 2024). The existing utility corridor overlaps the western edge of Priority Wildlife Connectivity Area Region R12, hexagons H210 and H228 (ODFW 2024). These ODFW areas are non-regulatory and serve to provide planning guidance to identify important habitat and achieve broad wildlife conservation goals.

The existing utility corridor is also within North American Bird Conservation Initiative (NABCI) Bird Conservation Region 5 Northern Pacific Rainforest (NABCI 2021); this National Audubon Society Important Bird Area (IBA) is shown with hatching on Figure 2 (Audubon 2026). The National Audubon Society's IBA program identifies areas of particular importance to bird conservation based on standardized biological criteria, including concentrations of birds, occurrence of species of conservation concern, and important habitat. IBA boundaries are conservation-planning designations and do not independently establish regulatory restrictions or protected-land status. The existing utility corridor is also within and adjacent to the Tualatin River National Wildlife Refuge (NWR), which is shown as a shaded area in Figure 2. Though the two areas overlap in places, the Audubon IBA boundary is distinct from the federally managed Tualatin River NWR boundary. The Tualatin River NWR is managed by the U.S. Fish and Wildlife Service (USFWS), whereas the Audubon IBA is a broader conservation designation intended to identify areas important to birds.

3.1 CLIMATE

Sherwood, Oregon lies within the northern Willamette Valley and experiences warm, dry summers and cool, wet winters. NOAA 2006-2020 Climate Normals (NCEI 2026) for Portland-Hillsboro Airport, the nearest long-term observing station to the proposed gen-tie, indicate average annual precipitation totaling approximately 34 inches, with most precipitation occurring from October to March and very little precipitation during July and August. The average winter temperature is approximately 40 °F, while the average summer temperature is approximately 66 °F. Climate normals indicate wetter and more overcast conditions during late fall through spring compared to summer months. Reduced visibility associated with fog and low cloud conditions can occur periodically during winter weather events.

FIGURE 2 WILDLIFE AND BIODIVERSITY AREA



4. METHODS

4.1 FIELD INVESTIGATIONS

ERM conducted a desktop review and subsequent pedestrian surveys on January 24 to 25 and May 16, 2024, to identify avian habitat (including wetlands and waters due to their habitat value for birds) and to collect avian data and observations (ERM 2024a, ERM 2024b). ERM conducted pedestrian surveys for general wildlife, including avian species, during normal daylight hours and fair weather conditions to assess direct and indirect evidence of potential wildlife presence and activity (e.g., confirmed visual or auditory observations, presence of animal tracks or scat, indications of active animal forage or nesting). To assess avian habitat, ERM documented habitat types and delineated wetland and water features. ERM evaluated potentially regulated features using indicators of wetland or waterbody characteristics, or the lack thereof.

4.2 AVIAN DATA COMPILATION

ERM reviewed the following data sources for information on mapped wildlife habitat and potential or known protected species and habitats within a 1-mile radius of the gen-tie:

- Current and historical aerial imagery (Google Earth and Esri Topographic Web Mapping);
- USGS topographic contours;
- USFWS IPaC species list (USFWS 2026);
- USFWS Birds of Conservation Concern 2012: Migratory Bird Program (USFWS 2021);
- The ODFW Compass—OCS Reporting Tool (ODFW 2021);
- Audubon Important Bird Areas (Audubon 2025);
- North American Bird Conservation Initiative Bird Conservation Regions (NABCI 2021);
- Oregon Biodiversity Information Center (ORBIC) Rare Species Data (ORBIC 2025);
- Homeland Infrastructure Foundation Level Database Transmission Line data (Oregon Explorer 2024);
- State of Oregon GEOHub Data Oregon Wetland Database (State of Oregon 2019);
- U.S. Department of Agriculture, Natural Resources Conservation Service soil survey maps (NRCS 2026);
- USFWS National Wetland Inventory maps (USFWS 2004); and,
- USGS National Hydrography Database maps (USGS 2001).

ERM reviewed eBird bar chart data for the NWR to assess overall avian species detection frequencies and composition in the area (eBird 2026). ERM filtered the data to compile a list of the species[1] with maximum detection frequencies of 6 percent or greater[2] at any point in the year

[1] This does not include non-species taxa – observational categories used when a bird cannot be definitively identified to a single, distinct species, but can still be meaningfully described or grouped (eBird 2025a).
[2] eBird determines likelihood of observing a species in a given area based on frequency of detection. Detection frequencies less than 6 percent signify a species is either infrequent or unrecorded in that area (eBird 2021).

(to account for seasonal use of nearby habitat by migrants) over a roughly 9.5-year period from January 2016 to July 2026.

The frequency of detection is the percentage of complete eBird checklists that report a specific bird species in a given region and time frame (eBird 2025b). Species detected at frequencies lower than 6 percent are considered uncommon (eBird 2011) and therefore less likely to interact with the proposed gen-tie infrastructure. As such, these uncommon species were not considered for this assessment. Importantly, detection frequency does not necessarily reflect abundance. For example, Snow Goose (*Anser caerulescens*) was documented in the area during migration and the non-breeding season. Although the species reached its highest detection frequency in October (approximately 13 percent), the maximum count recorded that month was only six individuals. In contrast, Snow Goose detection frequency in January was lower (5.6 percent), but the maximum count was substantially higher at 102 individuals.

ERM assigned species to three broad groups - waterbirds, raptors, and other birds - and assessed the USFWS, State of Oregon (ODFW 2021), and OCS conservation status for each species.

4.3 RISK ASSESSMENT

ERM considered collision risk for the species groups included in the final avian species list and conducted a qualitative exposure analysis considering frequency of occurrence, seasonal use, susceptibility (i.e., flight maneuverability, flocking behavior, known collision vulnerability), and the utility infrastructure location and configuration in relation to surrounding habitat resources.

5. RESULTS

5.1 FIELD INVESTIGATIONS

The desktop assessment identified federal and state listed and sensitive species and OCS habitats including oak woodlands, flowing water and riparian areas, and wetlands with potential to occur within the Project study area (ERM 2024a), which included the proposed work area for the utility infrastructure within the City of Sherwood as well as portions of the Project area that are outside City limits. ERM did not observe oak woodlands during the pedestrian survey, although limited wetland and shrub habitat was observed. In addition, ERM observed that Rock Creek, offsite to the east of the study area (and outside of City limits), had flooded the eastern end of the surveyed parcels as well as neighboring parcels.

ERM observed two sensitive species during the biological resources survey: a Bald Eagle (Bald and Golden Eagle Protection Act) perching in trees within the Project study area, and one Western Meadowlark (state sensitive-critical) flyover; no suitable nesting habitat was identified for these species within the Project study area. ERM did not observe any other sensitive species in the vicinity of the Project during surveys. An unmaintained hazelnut orchard in the northern portion of the Project study area (outside of City limits) provides nesting and foraging habitat for passerine species. In addition, ERM documented a potential Spotted Towhee (*Pipilo maculatus*) nest near the southwestern edge of the forested habitat near the proposed BESS location (outside of City limits). ERM determined the site may provide some foraging habitat for raptors and nesting habitat for passerines (songbirds), and that limited aquatic habitat was present toward the northern end of the Project study area.

ERM observed and/or delineated three wetlands, one stream, and one excavated pond within the Project study area during the initial field surveys in January 2024 (ERM 2024b). ERM did not identify any additional wetland or waters features within the Project study area during the field survey in May 2024. All identified wetlands and waters are located outside of City limits within unincorporated Washington County.

5.2 AVIAN RESOURCES

5.2.1 HABITAT

The primary habitats in the immediate vicinity of the proposed gen-tie are highly disturbed and provide limited resources for birds. The utility corridor is managed by PGE and primarily consists of open, non-native annual and perennial grassland with sparse tree cover, Himalayan blackberry (*Rubus armeniacus*) thickets, and other non-native and invasive species along the margins of the right-of-way. The western end of the proposed gen-tie crosses the proposed Adams Avenue North Concept Plan, an area with proposed urban development along Southwest Langer Farms Parkway, before terminating at PGE's Sherwood Substation. Habitat in this area is largely limited to landscaping along the road and extensive energy infrastructure converges at the substation (Figure 3).

The proposed gen-tie is near the Tualatin River National Wildlife Refuge (NWR), a United States Fish and Wildlife Service (USFWS)-managed complex of six refuge management units totaling

2,217 acres (USFWS 2012). The Refuge includes portions of the Tualatin River and its tributaries, seasonal and persistent wetlands, riparian corridors, river floodplain habitat, and agricultural fields (USFWS N.D.). During the period between November and May, increased precipitation in the area leads to flooding and runoff diversion into the NWR. The Atfálat'i Unit (555 acres), to the north of the proposed gen-tie, borders the Tualatin River and comprises seven wetland cells. The Onion Flats Unit (139 acres), to the northeast and east of the proposed gen-tie, is a low-lying basin bisected by the channelized Rock Creek (USFWS 2012). In winter, flooded wetlands in these areas provide important habitat for wintering waterfowl, and there are typically 15,000 to 30,000 individuals on the refuge, with Northen Pintail (*Anas acuta*) exceeding 18,000 individuals and Cackling Goose (*Branta hutchinsii*) exceeding 8,000 individuals (all units including the disjunct Wapato Unit) (Audubon 2024). During spring and fall migration periods, mudflats are abundant drawing groups of up to 100 birds.

Based on recent Google Earth imagery from February 2025, the month with the greatest average daily discharge rate measured on the Tualatin River (USFWS 2012), wetland habitat is concentrated to the north of the proposed gen-tie in the Atfálat'i and Onion Flats Units. Rock Creek remains channelized toward the southern end of the Onion Flats Unit to the east of the proposed gen-tie.

5.2.2 SPECIES COMPOSITION

The eBird data for the NWR contained 234 species documented during the 9.5-year period from January 2016 to July 2026, of which 149 species had a maximum detection frequency of 6 percent or greater and could be considered frequently detected in the area (Appendix A). This species assemblage accounts for transient or flyover use of the proposed gen-tie area. Habitat in the immediate vicinity of the proposed gen-tie is either non-existent or unsuitable for many (including all waterbirds) of these 149 species.

Special status species frequently documented at the NWR are summarized in Table 1, NWR Special Status Species. None of these species are of high conservation importance (i.e., federally or state endangered or threatened).

FIGURE 3 RARE SPECIES AND HABITAT RESOURCES

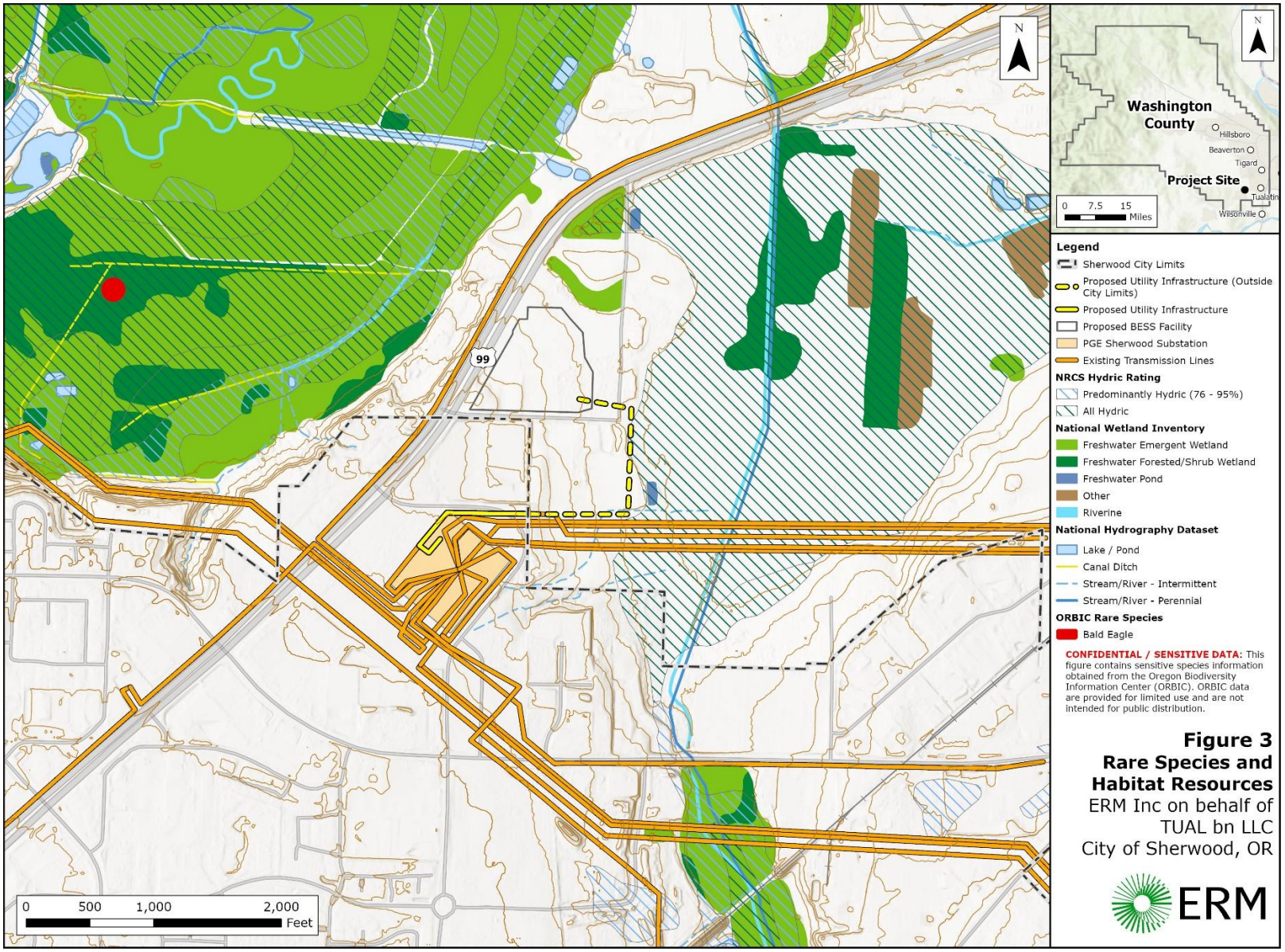


TABLE 1 NWR SPECIAL STATUS SPECIES

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
California Gull (*Larus californicus*)	Waterbird	Seabird	BCC	-	-	8%
Lesser Yellowlegs (*Tringa flavipes*)	Waterbird	Shorebird	BCC-nb	-	-	40%
Marbled Godwit (*Limosa fedoa*)	Waterbird	Shorebird	BCC-nb	-	-	8%
Short-billed Dowitcher (*Limnodromus griseus*)	Waterbird	Shorebird	BCC	-	-	10%
Wilson's Phalarope (*Phalaropus tricolor*)	Waterbird	Shorebird	-	-	SGCN	16%
Bald Eagle (*Haliaeetus leucocephalus*)	Raptor	Eagle	BGEPA	-	-	72%
Peregrine Falcon (*Falco peregrinus*)	Raptor	Falcon	-	SC	-	13%
Rufous Hummingbird (*Selasphorus rufus*)	Other bird	Hummingbird	BCC	-	-	13%
Vaux's Swift (*Chaetura vauxi*)	Other bird	Hummingbird	BCC	-	-	62%
Chestnut-backed Chickadee (*Poecile rufescens*)	Other bird	Passerine	BCC	-	-	22%
Purple Martin (*Progne subis*)	Other bird	Passerine	-	SC	SGCN	60%
Western Bluebird (*Sialia mexicana*)	Other bird	Passerine	-	S	SGCN	9%
Western Meadowlark (*Sturnella neglecta*)	Other bird	Passerine	-	SC	SGCN	13%
Western Wood-Pewee (*Contopus sordidulus*)	Other bird	Passerine	-	S	-	60%
White-breasted Nuthatch (*Sitta carolinensis*)	Other bird	Passerine	BCC	-	SGCN	30%
Willow Flycatcher (*Empidonax traillii*)	Other bird	Passerine	-	SC	SGCN	46%

Notes:
USFWS Classifications - BGEPA = Bald and Golden Eagle Protection Act; BCC = Bird of Conservation Concern; BCC-nb = Bird of Conservation Concern, non-breeding
State Classifications - S = Sensitive; SC = Sensitive-Critical
OCS Classification - SGCN = Species of Greatest Conservation Need

5.2.2.1 WATERBIRDS

Of the species frequently documented within the NWR, 59 are waterbirds including waterfowl, shorebirds, gulls, herons, rails, and pelicans. Twenty-four waterfowl species are frequently documented at the NWR including Tundra Swan (*Cygnus columbianus*), Snow Goose (*Anser caerulescens*), and Cinnamon Teal (*Spatula cyanoptera*). While some of the waterfowl species documented at the NWR are resident, many are migratory and utilize extensive wetland and floodplain habitat present between November and May. Many migratory waterfowl species form large flocks during migration and when on their wintering grounds. Twenty-two shorebird species are frequently documented at the NWR including Spotted Sandpiper (*Actitis macularius*), Lesser Yellowlegs (*Tringa flavipes*), and Least Sandpiper (*Calidris minutilla*). Shorebird species are typically found foraging along the margins of water bodies and in shallower water and most are present in the area during migration and into the summer months when water levels recede following the rainy season. Thirteen species of other waterbirds are frequently documented at the NWR including California Gull (*Larus Californicus*), Pied-billed Grebe (*Podilymbus Podiceps)*, and Great Blue Heron (*Ardea herodias*). This group is diverse, and while many species are solitary and utilize habitat within emergent vegetation, the American Coot (*Fulica americana*) and American White Pelican (*Pelicanus erythrorhynchos*) utilize open aquatic habitat and are more gregarious.

5.2.2.2 RAPTORS

Twelve species of raptor are frequently documented within the NWR, including Bald Eagle (*Haliaeetus leucocephalus*), Osprey (*Pandion haliaetus*), Merlin (*Falco sparverius*), and Red-shouldered Hawk (*Buteo lineatus*). Many of the raptor species documented at the NWR are resident species and likely breed in the area. While most raptors are solitary, Bald Eagles can congregate in large numbers on their wintering grounds and Turkey Vultures (*Cathartes aura*) are often observed in groups of varying sizes when foraging. Raptor species documented at the NWR utilize a broad range of habitat types including grassland, oak woodland, riparian forest, and wetland.

5.2.2.3 OTHER BIRDS

Seventy-eight species frequently documented within the NWR are passerines, hummingbirds, doves, woodpeckers, game birds, and one species of kingfisher. These include common species such as Song Sparrow (*Melospiza melodia*), Brewer's Blackbird (*Euphagus cyanocephalus*), Northern Flicker (*Colaptes auratus*), and Rufous Hummingbird (*Selasphorus rufus*). While many birds in this group are year-round residents, others display a broad range of migratory habits: most warblers, swallows, hummingbirds, and flycatchers breed in the area and migrate during the winter, and many species of sparrow overwinter in the area and are absent during the breeding season. This group of species utilizes a broad range of habitat types found throughout the area. While some species such as Red-winged Blackbird (*Agelaius phoeniceus*) breed in loose colonies, others such as the Ruby-crowned Kinglet (*Corthylio calendula*) forage in mixed-species flocks during the non-breeding season.

5.3 COLLISION RISK ASSESSMENT

Site-specific variables define collision risk, and not all transmission lines present an equal risk to birds. Avian collision risk is determined by assessing species-specific factors, site-specific factors (e.g., habitat, land-use, topography, weather), and power line-specific factors (Avian Power Line Interaction Committee (APLIC) 2012; Bernardino et al. 2018; Mojica et al. 2009).

Collision risk is not random among species; those at greatest risk of collision with overhead lines are large, heavy-bodied birds with limited maneuverability and large wingspans such as waterfowl, cranes, pelicans, and herons (APLIC 2012; Bevanger 1994). Gregarious, flocking species are generally considered more vulnerable to collision than species with solitary habits (Bernardino et al. 2018; Bevanger 1994). Species with visual limitations or reduced visual acuity are more likely to collide with less visible components of transmission line design such as shield wires, guy wires, and overhead optical ground wires (Bevanger 1994). Landscape context is also critical; lines that cross major flight paths or movement corridors, occur between roosting and feeding areas, follow prominent topographical features, or are located in areas with frequent fog and poor visibility are more likely to lead to potential interactions (Bernardino et al. 2018; Bevanger 1994; Mojica et al. 2009).

5.3.1 EXPOSURE ANALYSIS

Despite the proximity of the proposed gen-tie line to the Tualatin River National Wildlife Refuge, the proposed gen-tie does not cross major water bodies or wetland complexes and is not near known communal bird roost sites. These characteristics distinguish the Project from other transmission line settings that are most associated with elevated avian collision rates described in the literature.

Wetland habitat is concentrated to the north of the proposed gen-tie in the Atfálat'i and Onion Flats Units of the NWR. East of the proposed gen-tie, habitat becomes more concentrated in the southern portion of the Onion Flats Unit due to the channelization of Rock Creek. Based on habitat conditions and distribution, ERM expects most east to west bird movements to occur north of the proposed gen-tie, while most north to south bird movements are likely to occur east of the proposed gen-tie. Because the area lies within the Pacific Flyway, one of the four major bird migration corridors within the continental U.S., movements towards the north and south are expected to increase during spring and fall migration. The rise in elevation to the west and northwest, combined with the distance between the proposed gen-tie and the core of the Atfálat'i Unit to the north, likely serves as a buffer that may reduce collision risk by limiting altitude changes as birds approach or depart refuge habitats (Figure 3).

5.3.1.1 WATERBIRDS

Waterbirds can collide with transmission lines because of their poor maneuverability, which is often associated with high wing-loading (Bevanger 1998; Rioux, Savard, and Gerick 2013). Most waterbird collisions with transmission lines occur in specific habitats, especially where they cross water bodies (Bevanger 1998), between resting and foraging areas (Savereno et al. 1996), near and parallel to shores (APLIC 2012), and through valleys (Bevanger 1998).

Waterbird abundance and distribution throughout the NWR is correlated with the spatial distribution of aquatic habitats, which vary significantly throughout the year. During drier months, aquatic habitat is largely limited to areas closer to the Tualatin River and along Rock Creek and waterbird species are unlikely to encounter the proposed gen-tie area due to lack of suitable habitat within the utility right-of-way and lack of a known movement corridor across the utility right-of-way. During wet months, availability of aquatic habitats in the NWR significantly increases, and habitat to the northeast and east of the proposed gen-tie is flooded. This increase in availability of wetland habitat likely increases bird activity in the area. That said, bird movement in the area is likely concentrated north of the proposed gen-tie in the east to west direction across Route 99 West between refuge areas. The area around the proposed gen-tie provides limited roosting habitat for waterbirds, and it is unlikely that birds move through the area to fly to or from roosts.

5.3.1.2 RAPTORS

The potential for raptors to interact with tall structures such as transmission lines, towers, and guy-wires is relatively low in comparison to other species groups since raptors have excellent eyesight, do not form flocks, and are generally better able to maneuver around obstacles than many other large birds (APLIC 2012; Bernardino et al. 2018; Eccleston and Harness 2018; Mojica 2020). That said, some raptor species are more likely to engage in high-speed flights when hunting, which can make them susceptible to unforeseen obstacles (APLIC 2012). Studies have shown that raptors avoid transmission lines intersecting regular movement corridors suggesting that individuals may become acclimatized to fixed obstacles within frequently used areas (Mojica 2020).

Raptor foraging habitat and nesting substrate in the immediate vicinity of the proposed gen-tie are limited. Some species such as Red-tailed Hawk (*Buteo jamaicensis*) and American Kestrel (*Falco sparverius*) frequently hunt in open habitat and likely utilize the area within the utility corridor. Even so, these species typically engage in hovering or slow flight when hunting in such habitat rather than the high-speed flight more likely to result in line collision. Both resident and migrant raptors occur in the area and utilize habitat within the NWR when foraging. Whereas most documented species are habitat generalists, Bald Eagles and Osprey hunt for aquatic prey and, like waterbirds in the area, their foraging patterns can be expected to shift with seasonal variation in the spatial distribution of aquatic habitats. ORBIC data includes a known Bald Eagle nest to the west of Route 99 West, and one Bald Eagle was observed perched within the BESS Project area to the north of the proposed gen-tie during the Biological Resource Survey in 2024 (ERM 2024a). None of the raptor species discussed in this section are known to have a high collision risk.

5.3.1.3 OTHER BIRDS

Because they are generally small, passerine collision risk may be underestimated because carcasses are difficult to detect and have a high scavenging rate. That said, most are not heavy bodied and have low wing-loading and greater maneuverability (APLIC 2012). Some passerine species such as the European Starling (*Sturnus neglectus*) are highly social and form large flocks, a behavior which can increase the risk of collision, especially when startled (APLIC 2012). The majority of resident and wintering passerine and other bird species expected in the vicinity of the

proposed gen-tie are relatively solitary or form smaller, multi-species flocks during the non-breeding season. Because of the limited vegetative cover in the vicinity of the proposed alignment, the area is not attractive to this group. While some of these other bird species likely utilize habitat along the margins of the utility infrastructure, habitat for others is not present. This group is unlikely to interact with the proposed gen-tie infrastructure.

6. APLIC-BASED AVOIDANCE AND MINIMIZATION MEASURES

The Applicant will design and construct the proposed gen-tie to avian-safe design standards, including in accordance with Reducing Avian Collisions with Power Lines (APLIC 2012), and Suggested Practices for Avian Protection on Power Lines (APLIC 2006).

6.1 PROPOSED GEN-TIE ALIGNMENT AND DESIGN

The proposed gen-tie alignment provides the shortest practicable route between the City limit and PGE's required point of interconnection and minimizes impacts to existing PGE infrastructure by consolidating the existing 115 kV and new 230 kV conductors within an established utility corridor. The Applicant proposes to replace existing wood poles with steel monopoles capable of supporting both the existing 115 kV conductors and the new 230 kV conductors. Approximately 1,200 linear feet of the existing 115 kV conductors will be re-strung on the replacement structures rather than relocated to a new corridor and the new 230 kV conductors will be integrated on the replacement structures.

The proposed design comprises five vertically configured double circuit monopoles. The anticipated structure configurations will be approximately 120 to 140 feet tall, depending on span distances (current structures are approximately 53 to 63 feet tall). Proposed conductor heights at mid-span will range from approximately 46 to 109 feet high (current conductor heights at mid-span range from approximately 33 to 50 feet high). The gen-tie span distances will range from approximately 167 to 360 feet. Vertical spacing will be approximately 12 to 15 feet between the 230 kV conductors and 8 feet between the 115 kV conductors. Based on the current design, the gen-tie will not utilize an overhead shield wire, the transmission line feature which accounts for most avian collisions (APLIC 2012, Bernardino et al. 2018). Three monopole structures will be erected atop pier foundations and two will have their bases embedded below-grade; no structures will require guy wires. The proposed design incorporates optical fiber cables which will be installed toward the base of the towers beneath the 115 kV and 230 kV conductors.

6.2 LINE VISIBILITY MEASURES

Because of their smaller diameter, shield wires, guy wires, and overhead optical ground wires pose the greatest risk for avian collisions and will be marked with flight diverters or other approved devices in accordance with APLIC guidelines (APLIC 2012). Numerous studies have shown that flight diverters (line markers) can significantly decrease avian collision rates (Mojica et al 2009; Bernardino et al. 2018; Murphy et al. 2016). Barrientos et al. (2011) analyzed the results of 21 independent studies on power line marking and reported an average 78% reduction in collisions across various types of marking technologies in different geographic locations. Bernardino et al. (2019) analyzed 191 studies on power line marking and reported an average reduction in collisions of 50.4% across different device-types under different scenarios.

Although existing PGE facilities in the corridor are not currently marked, installation of diverters on the new conductors will represent an enhancement measure intended to further reduce the already low anticipated collision risk associated with the proposed gen-tie. Since the new infrastructure will be taller than the existing infrastructure, flight diverters can help to limit risk

posed by the increased height of the new towers and lines. Fog and a lower cloud ceiling during wet months decrease visibility for flighted birds, leading to lower flight altitudes and increased collision risk. Flight diverters that glow-in-the-dark with bright coloration and reflective features are helpful under such conditions and are recommended due to frequency of fog and low cloud ceiling in the Project region.

In addition to marking power lines to increase visibility to birds in flight and thus reduce exposure risk, collocating power lines in existing rights-of-way immediately adjacent or parallel to existing power lines has been shown to reduce exposure risk (Thompson 1978, APLIC 2012). Best practice guidelines suggest that new power lines be sited along existing linear elements (e.g., existing powerline right-of-way and roads) to help mitigate collisions and reduce exposure risk (Williams 2003, Prinsen et al. 2012, SNH 2016). Because the proposed gen-tie is co-located with existing PGE infrastructure and within a highly developed utility corridor, resident birds are likely acclimated to the presence of lines in the area (Mojica 2020).

7. CONCLUSIONS

Based on the proposed alignment, existing utility setting, surrounding habitat conditions, anticipated bird-movement patterns, and implementation of appropriate line-marking measures (Bernardino et al. 2018), ERM concludes that the proposed gen-tie would result in minimal additional avian collision risk. Habitat within and in the immediate vicinity of the proposed gen-tie is degraded and provides marginal value to birds. While the Tualatin River NWR and nearby Audubon IBA see large numbers of birds, especially during migration and winter months, the proposed alignment does not pose a barrier to movement between NWR resources or bisect the IBA and ODFW habitat. The nearest portions of the IBA occur approximately 1,000 feet east of the portion of the proposed gen-tie within City limits. The distribution of refuge resources suggests that bird movement is more likely to occur between refuge units north and northeast of the proposed gen-tie than directly across the alignment. Because it has been channelized, Rock Creek, to the northeast and east, is not a significant habitat resource for large-bodied waterbirds outside of the rainy season. Additionally, Rock Creek and its floodplain lie to the east of the proposed gen-tie and most avian movement along the creek and associated habitats is likely concentrated in the north to south direction along the creek, which does not cross the proposed gen-tie.

PGE has had no reported bird collisions associated with its existing facilities in the existing utility right-of-way proposed for the gen-tie (PGE, pers. comm.). While the absence of reported collisions does not establish that collisions never occur, it provides useful local context alongside the data and risk assessment summarized herein and the Applicant’s commitment to adhere to APLIC guidance.

While the proposed infrastructure will be taller than existing infrastructure within the utility corridor, any potential collision risk associated with the additional height of towers and lines can be significantly reduced by utilizing flight diverters. Marking the conductors along the proposed gen-tie will occur. Additionally, by not using an overhead shield wire, the design removes the aspect of the transmission line most often involved in avian collisions.

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APPENDIX A AVIAN SPECIES OCCURRING WITHIN TUALATIN RIVER NATIONAL WILDLIFE REFUGE

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
American Bittern (*Botaurus lentiginosus*)	Waterbird	Other Waterbird	-	-	-	11%
American Coot (*Fulica americana*)	Waterbird	Other Waterbird	-	-	-	71%
American White Pelican (*Pelecanus erythrorhynchos*)	Waterbird	Other Waterbird	-	-	-	55%
Double-crested Cormorant (*Nannopterum auritum*)	Waterbird	Other Waterbird	-	-	-	54%
Great Blue Heron (*Ardea herodias*)	Waterbird	Other Waterbird	-	-	-	93%
Great Egret (*Ardea alba*)	Waterbird	Other Waterbird	-	-	-	84%
Green Heron (*Butorides virescens*)	Waterbird	Other Waterbird	-	-	-	34%
Pied-billed Grebe (*Podilymbus podiceps*)	Waterbird	Other Waterbird	-	-	-	75%
Sora (*Porzana carolina*)	Waterbird	Other Waterbird	-	-	-	13%
Virginia Rail (*Rallus limicola*)	Waterbird	Other Waterbird	-	-	-	12%
Wilson's Snipe (*Gallinago delicata*)	Waterbird	Other Waterbird	-	-	-	30%
Bonaparte's Gull (*Chroicocephalus philadelphia*)	Waterbird	Seabird	-	-	-	7%
California Gull (*Larus californicus*)	Waterbird	Seabird	BCC	-	-	8%
American Avocet (*Recurvirostra americana*)	Waterbird	Shorebird	-	-	-	39%
Baird's Sandpiper (*Calidris bairdii*)	Waterbird	Shorebird	-	-	-	6%
Black-bellied Plover (*Pluvialis squatarola*)	Waterbird	Shorebird	-	-	-	7%
Black-necked Stilt (*Himantopus mexicanus*)	Waterbird	Shorebird	-	-	-	19%
Dunlin (*Calidris alpina*)	Waterbird	Shorebird	-	-	-	12%
Greater Yellowlegs (*Tringa melanoleuca*)	Waterbird	Shorebird	-	-	-	73%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Killdeer (*Charadrius vociferus*)	Waterbird	Shorebird	-	-	-	87%
Least Sandpiper (*Calidris minutilla*)	Waterbird	Shorebird	-	-	-	61%
Lesser Yellowlegs (*Tringa flavipes*)	Waterbird	Shorebird	BCC-nb	-	-	40%
Long-billed Dowitcher (*Limnodromus scolopaceus*)	Waterbird	Shorebird	-	-	-	69%
Marbled Godwit (*Limosa fedoa*)	Waterbird	Shorebird	BCC-nb	-	-	8%
Pectoral Sandpiper (*Calidris melanotos*)	Waterbird	Shorebird	-	-	-	22%
Red-necked Phalarope (*Phalaropus lobatus*)	Waterbird	Shorebird	-	-	-	17%
Ruff (*Calidris pugnax*)	Waterbird	Shorebird	-	-	-	7%
Semipalmated Plover (*Charadrius semipalmatus*)	Waterbird	Shorebird	-	-	-	13%
Semipalmated Sandpiper (*Calidris pusilla*)	Waterbird	Shorebird	-	-	-	8%
Sharp-tailed Sandpiper (*Calidris acuminata*)	Waterbird	Shorebird	-	-	-	9%
Short-billed Dowitcher (*Limnodromus griseus*)	Waterbird	Shorebird	BCC	-	-	10%
Solitary Sandpiper (*Tringa solitaria*)	Waterbird	Shorebird	-	-	-	16%
Spotted Sandpiper (*Actitis macularius*)	Waterbird	Shorebird	-	-	-	65%
Western Sandpiper (*Calidris mauri*)	Waterbird	Shorebird	-	-	-	47%
Wilson's Phalarope (*Phalaropus tricolor*)	Waterbird	Shorebird	-	-	SGCN	16%
American Wigeon (*Mareca americana*)	Waterbird	Waterfowl	-	-	-	69%
Black Swan (*Cygnus atratus*)	Waterbird	Waterfowl	-	-	-	18%
Blue-winged Teal (*Spatula discors*)	Waterbird	Waterfowl	-	-	-	31%
Brant (*Branta bernicla*)	Waterbird	Waterfowl	-	-	-	11%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Bufflehead (*Bucephala albeola*)	Waterbird	Waterfowl	-	-	-	81%
Cackling Goose (*Branta hutchinsii*)	Waterbird	Waterfowl	-	-	-	82%
Canada Goose (*Branta canadensis*)	Waterbird	Waterfowl	-	-	-	91%
Canvasback (*Aythya valisineria*)	Waterbird	Waterfowl	-	-	-	8%
Cinnamon Teal (*Spatula cyanoptera*)	Waterbird	Waterfowl	-	-	-	79%
Common Merganser (*Mergus merganser*)	Waterbird	Waterfowl	-	-	-	8%
Eurasian Wigeon (*Mareca penelope*)	Waterbird	Waterfowl	-	-	-	26%
Gadwall (*Mareca strepera*)	Waterbird	Waterfowl	-	-	-	86%
Greater White-fronted Goose (*Anser albifrons*)	Waterbird	Waterfowl	-	-	-	35%
Green-winged Teal (*Anas crecca*)	Waterbird	Waterfowl	-	-	-	79%
Hooded Merganser (*Lophodytes cucullatus*)	Waterbird	Waterfowl	-	-	-	25%
Lesser Scaup (*Aythya affinis*)	Waterbird	Waterfowl	-	-	-	30%
Mallard (*Anas platyrhynchos*)	Waterbird	Waterfowl	-	-	-	90%
Northern Pintail (*Anas acuta*)	Waterbird	Waterfowl	-	-	-	84%
Northern Shoveler (*Spatula clypeata*)	Waterbird	Waterfowl	-	-	-	84%
Ring-necked Duck (*Aythya collaris*)	Waterbird	Waterfowl	-	-	-	64%
Ruddy Duck (*Oxyura jamaicensis*)	Waterbird	Waterfowl	-	-	-	68%
Snow Goose (*Anser caerulescens*)	Waterbird	Waterfowl	-	-	-	13%
Tundra Swan (*Cygnus columbianus*)	Waterbird	Waterfowl	-	-	-	20%
Wood Duck (*Aix sponsa*)	Waterbird	Waterfowl	-	-	-	33%
American Kestrel (*Falco sparverius*)	Raptor	Falcon	-	-	-	53%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Bald Eagle (*Haliaeetus leucocephalus*)	Raptor	Eagle	BGEPA	-	-	72%
Cooper's Hawk (*Accipiter cooperii*)	Raptor	Hawk	-	-	-	17%
Great Horned Owl (*Bubo virginianus*)	Raptor	Owl	-	-	-	10%
Merlin (*Falco columbarius*)	Raptor	Falcon	-	-	-	8%
Northern Harrier (*Circus hudsonius*)	Raptor	Hawk	-	-	-	55%
Osprey (*Pandion haliaetus*)	Raptor	Osprey	-	-	-	51%
Peregrine Falcon (*Falco peregrinus*)	Raptor	Falcon	-	SC	-	13%
Red-shouldered Hawk (*Buteo lineatus*)	Raptor	Hawk	-	-	-	8%
Red-tailed Hawk (*Buteo jamaicensis*)	Raptor	Hawk	-	-	-	60%
Sharp-shinned Hawk (*Accipiter striatus*)	Raptor	Hawk	-	-	-	6%
Turkey Vulture (*Cathartes aura*)	Raptor	Vulture	-	-	-	50%
California Quail (*Callipepla californica*)	Other bird	Game bird	-	-	-	13%
Ring-necked Pheasant (*Phasianus colchicus*)	Other bird	Game bird	-	-	-	11%
Anna's Hummingbird (*Calypte anna*)	Other bird	Hummingbird	-	-	-	58%
Rufous Hummingbird (*Selasphorus rufus*)	Other bird	Hummingbird	BCC	-	-	13%
Vaux's Swift (*Chaetura vauxi*)	Other bird	Hummingbird	BCC	-	-	62%
Belted Kingfisher (*Megaceryle alcyon*)	Other bird	Kingfisher	-	-	-	49%
American Crow (*Corvus brachyrhynchos*)	Other bird	Passerine	-	-	-	67%
American Goldfinch (*Spinus tristis*)	Other bird	Passerine	-	-	-	68%
American Pipit (*Anthus rubescens*)	Other bird	Passerine	-	-	-	14%
American Robin (*Turdus migratorius*)	Other bird	Passerine	-	-	-	91%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Bank Swallow (*Riparia riparia*)	Other bird	Passerine	-	-	-	16%
Barn Swallow (*Hirundo rustica*)	Other bird	Passerine	-	-	-	88%
Bewick's Wren (*Thryomanes bewickii*)	Other bird	Passerine	-	-	-	55%
Black Phoebe (*Sayornis nigricans*)	Other bird	Passerine	-	-	-	24%
Black-capped Chickadee (*Poecile atricapillus*)	Other bird	Passerine	-	-	-	66%
Black-headed Grosbeak (*Pheucticus melanocephalus*)	Other bird	Passerine	-	-	-	53%
Black-throated Gray Warbler (*Setophaga nigrescens*)	Other bird	Passerine	-	-	-	9%
Brewer's Blackbird (*Euphagus cyanocephalus*)	Other bird	Passerine	-	-	-	18%
Brown Creeper (*Certhia americana*)	Other bird	Passerine	-	-	-	27%
Brown-headed Cowbird (*Molothrus ater*)	Other bird	Passerine	-	-	-	59%
Bullock's Oriole (*Icterus bullockii*)	Other bird	Passerine	-	-	-	7%
Bushtit (*Psaltriparus minimus*)	Other bird	Passerine	-	-	-	43%
California Scrub-Jay (*Aphelocoma californica*)	Other bird	Passerine	-	-	-	76%
Cassin's Vireo (*Vireo cassinii*)	Other bird	Passerine	-	-	-	7%
Cedar Waxwing (*Bombycilla cedrorum*)	Other bird	Passerine	-	-	-	78%
Chestnut-backed Chickadee (*Poecile rufescens*)	Other bird	Passerine	BCC	-	-	22%
Cliff Swallow (*Petrochelidon pyrrhonota*)	Other bird	Passerine	-	-	-	59%
Common Raven (*Corvus corax*)	Other bird	Passerine	-	-	-	7%
Common Yellowthroat (*Geothlypis trichas*)	Other bird	Passerine	-	-	-	85%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Dark-eyed Junco (*Junco hyemalis*)	Other bird	Passerine	-	-	-	68%
European Starling (*Sturnus vulgaris*)	Other bird	Passerine	-	-	-	81%
Fox Sparrow (*Passerella iliaca*)	Other bird	Passerine	-	-	-	24%
Golden-crowned Kinglet (*Regulus satrapa*)	Other bird	Passerine	-	-	-	39%
Golden-crowned Sparrow (*Zonotrichia atricapilla*)	Other bird	Passerine	-	-	-	56%
Hermit Thrush (*Catharus guttatus*)	Other bird	Passerine	-	-	-	7%
House Finch (*Haemorhous mexicanus*)	Other bird	Passerine	-	-	-	74%
House Sparrow (*Passer domesticus*)	Other bird	Passerine	-	-	-	9%
Hutton's Vireo (*Vireo huttoni*)	Other bird	Passerine	-	-	-	10%
Lazuli Bunting (*Passerina amoena*)	Other bird	Passerine	-	-	-	68%
Lesser Goldfinch (*Spinus psaltria*)	Other bird	Passerine	-	-	-	44%
Lincoln's Sparrow (*Melospiza lincolnii*)	Other bird	Passerine	-	-	-	21%
Marsh Wren (*Cistothorus palustris*)	Other bird	Passerine	-	-	-	28%
Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)	Other bird	Passerine	-	-	-	35%
Northern Shrike (*Lanius borealis*)	Other bird	Passerine	-	-	-	9%
Northern Yellow Warbler (*Setophaga aestiva*)	Other bird	Passerine	-	-	-	34%
Orange-crowned Warbler (*Leiothlypis celata*)	Other bird	Passerine	-	-	-	44%
Pacific Wren (*Troglodytes pacificus*)	Other bird	Passerine	-	-	-	16%
Pine Siskin (*Spinus pinus*)	Other bird	Passerine	-	-	-	11%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
Purple Finch (*Haemorhous purpureus*)	Other bird	Passerine	-	-	-	29%
Purple Martin (*Progne subis*)	Other bird	Passerine	-	SC	SGCN	60%
Red-breasted Nuthatch (*Sitta canadensis*)	Other bird	Passerine	-	-	-	35%
Red-winged Blackbird (*Agelaius phoeniceus*)	Other bird	Passerine	-	-	-	93%
Ruby-crowned Kinglet (*Corthylio calendula*)	Other bird	Passerine	-	-	-	46%
Savannah Sparrow (*Passerculus sandwichensis*)	Other bird	Passerine	-	-	-	72%
Song Sparrow (*Melospiza melodia*)	Other bird	Passerine	-	-	-	85%
Spotted Towhee (*Pipilo maculatus*)	Other bird	Passerine	-	-	-	79%
Steller's Jay (*Cyanocitta stelleri*)	Other bird	Passerine	-	-	-	41%
Swainson's Thrush (*Catharus ustulatus*)	Other bird	Passerine	-	-	-	50%
Tree Swallow (*Tachycineta bicolor*)	Other bird	Passerine	-	-	-	68%
Violet-green Swallow (*Tachycineta thalassina*)	Other bird	Passerine	-	-	-	46%
Western Bluebird (*Sialia mexicana*)	Other bird	Passerine	-	S	SGCN	9%
Western Flycatcher (*Empidonax difficilis*)	Other bird	Passerine	-	-	-	20%
Western Meadowlark (*Sturnella neglecta*)	Other bird	Passerine	-	SC	SGCN	13%
Western Tanager (*Piranga ludoviciana*)	Other bird	Passerine	-	-	-	35%
Western Warbling Vireo (*Vireo swainsoni*)	Other bird	Passerine	-	-	-	22%
Western Wood-Pewee (*Contopus sordidulus*)	Other bird	Passerine	-	S	-	60%
White-breasted Nuthatch (*Sitta carolinensis*)	Other bird	Passerine	BCC	-	SGCN	30%

Species	Group	Subgroup	Conservation Status			Max. Detection Frequency
			USFWS	State	OCS	
White-crowned Sparrow (*Zonotrichia leucophrys*)	Other bird	Passerine	-	-	-	46%
White-throated Sparrow (*Zonotrichia albicollis*)	Other bird	Passerine	-	-	-	6%
Willow Flycatcher (*Empidonax traillii*)	Other bird	Passerine	-	SC	SGCN	46%
Wilson's Warbler (*Cardellina pusilla*)	Other bird	Passerine	-	-	-	29%
Eurasian Collared-Dove (*Streptopelia decaocto*)	Other bird	Pigeon/Dove	-	-	-	21%
Mourning Dove (*Zenaida macroura*)	Other bird	Pigeon/Dove	-	-	-	54%
Downy Woodpecker (*Dryobates pubescens*)	Other bird	Woodpecker	-	-	-	37%
Hairy Woodpecker (*Dryobates villosus*)	Other bird	Woodpecker	-	-	-	8%
Northern Flicker (*Colaptes auratus*)	Other bird	Woodpecker	-	-	-	69%
Pileated Woodpecker (*Dryocopus pileatus*)	Other bird	Woodpecker	-	-	-	8%
Red-breasted Sapsucker (*Sphyrapicus ruber*)	Other bird	Woodpecker	-	-	-	28%

Notes:
USFWS Classifications - BGEPA = Bald and Golden Eagle Protection Act; BCC = Bird of Conservation Concern; BCC-nb = Bird of Conservation Concern, non-breeding
State Classifications - S = Sensitive; SC = Sensitive-Critical
OCS Classification - SGCN = Species of Greatest Conservation Need



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APPENDIX I ALTERNATIVES ANALYSIS

ALTERNATIVES ANALYSIS

1. INTRODUCTION

TUAL bn, LLC (Applicant), a subsidiary of BrightNight, LLC, plans to construct, own, and operate the Nottingham Battery Energy Storage System (BESS), a lithium-ion battery energy storage facility capable of storing and delivering power to the Portland General Electric Company (PGE) regional transmission grid (Nottingham BESS). The Nottingham BESS is in Washington County, Oregon on Tax Lots 2S120D001200 and 2S120D001100 and will occupy a 12.5-acre site. The Nottingham BESS received its Special Use and Development Review approval from Washington County in May 2025 (Casefile L2400314-SU/D).

The Nottingham BESS will interconnect to PGE's regional transmission grid at the PGE Sherwood Substation, located within the City of Sherwood (City). An approximate 0.5-mile 230 kilovolt (kV) generation-tie line (gen-tie) will connect the Nottingham BESS to the Sherwood Substation; approximately 1,200 feet of the gen-tie is within the City of Sherwood and will be co-located on PGE's existing utility infrastructure. The Applicant is upgrading existing PGE poles to accommodate the approximately 1,200 feet of 230 kV gen-tie along with PGE's existing 115 kV line on up to five utility poles (proposed route). The proposed route for the gen-tie is shown in Figure 1.

This alternatives analysis evaluates whether there are reasonable alternative routes other than the proposed route within the City of Sherwood. The Applicant previously completed an alternatives analysis to inform the siting of Nottingham BESS and the gen-tie route within Washington County. The County's land use approval evaluated alternatives and approved the proposed route shown in Figure 1. Accordingly, this alternatives analysis only addresses the portion of the gen-tie located within the City of Sherwood from the point the gen-tie enters the City limits to its interconnection at the PGE Sherwood Substation.

The PGE Sherwood Substation is designated critical infrastructure with a capacity rating of 320 megavolt-ampere; the substation operates at a transmission voltage level of 230/115 kV. The term "critical infrastructure" refers to machinery, facilities, and information systems that enable critical functions of governance, public health, and the economy[1]. A substation is critical infrastructure because it is the vital link for voltage transformation and power routing across the electrical grid. Substations are needed to safely transmit power to customers; substations also regulate power flow to prevent system overloads and use automatic breakers to stop local issues from becoming widespread power outages.

2. SUMMARY OF SITING CRITERIA

The Applicant identified five siting criteria to evaluate potential alternative gen-tie routes within the City of Sherwood. PGE requires the gen-tie to interconnect at a defined point within the

[1] The 2001 Critical Infrastructures Protection Act defines critical infrastructure as "systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a depilating impact on security, national economic security, national public health or safety, or any combination of those matters."

northwest quadrant of the PGE Sherwood Substation, inside the substation perimeter fence (Figure 1). Because PGE has established this point of interconnection, it is a fixed endpoint and is not a variable in the Applicant's route analysis. PGE requires the gen-tie to connect to Bus V66 at Sherwood Substation. This Bus V66 connection point is currently unused and provides a straightforward route that minimizes 230 kV transmission line crossings between the interconnection point and the generating facility. Accordingly, to be considered feasible, an alternative route must provide a continuous alignment from the point at which the gen-tie leaves Washington County to the required point of interconnection.

Siting criteria are factors that are developed and then used to select the best physical location for placing utility infrastructure. The Applicant developed the siting criteria listed below to evaluate potential gen-tie routes and identify a route that is reasonable and feasible considering the project's physical, engineering, operational, property, and environmental constraints. Each siting criterion is defined and subsequently analyzed further in the sections below.

1. Least impact to existing PGE infrastructure
2. Least impact to future PGE infrastructure
3. Technical feasibility
4. Site control
5. Minimal environmental impacts

The siting criteria are considered collectively, rather than in isolation. An alternative route need not perform best under every criterion; however, on balance, must satisfy each siting criterion to a degree that provides a practicable means of constructing, interconnecting, operating, and maintaining the gen-tie.

The Applicant applied the five siting criteria to potential routes within the City of Sherwood, resulting in the proposed route and eliminating alternative routes. The proposed route is the only technically feasible route under the siting criteria, as described below.

2.1 LEAST IMPACT TO EXISTING PGE INFRASTRUCTURE

This criterion was defined to identify a route that would have the least amount of impact on existing critical infrastructure (i.e., the Sherwood Substation and associated existing transmission lines). This siting criterion was considered to protect the reliability of existing PGE infrastructure that is currently used to deliver safe and reliable electricity to customers across southeast Washington County.

The proposed route minimizes impacts to existing PGE infrastructure by using an established PGE utility alignment and replacing existing wood poles with steel monopoles capable of supporting both the existing 115 kV line and the new 230 kV line. Approximately 1,200 feet of the existing 115 kV line would be re-strung on the replacement structures rather than relocated to a new corridor.

This configuration allows the new 230 kV line to be integrated with existing PGE infrastructure while limiting the need to establish separate transmission structures or a new parallel alignment.

The proposed route also provides a direct approach to the required point of interconnection within the Sherwood Substation shown in Figure 1.

Alternative routes that depart from the existing alignment would require additional facilities and will introduce new crossings, clearance requirements, structure locations, or other conflicts with PGE's existing system. Undergrounding the gen-tie would not eliminate impacts to existing PGE infrastructure. An underground 230 kV line would require a trench or duct-bank system, vaults, transition facilities (dead-end poles and risers), and associated access, all of which would need to be located in relation to existing overhead and underground PGE facilities and infrastructure. Underground construction could create additional conflicts involving utility crossings, required separation, existing foundations, access, and existing or planned subsurface infrastructure. Additionally, emergency repairs to an underground line would require excavation to repair, which would potentially cause prolonged outages with the potential to impact normal substation operations and other utility services in the vicinity of Southwest Langer Farms Parkway. Lastly, because the existing 115 kV line would remain overhead and continue to require support structures, undergrounding the new 230 kV line would not eliminate the need to make future upgrades to the existing 115 kV overhead system. The underground alignment would still require relocation or reconstruction of portions of the existing 115 kV facilities to accommodate crossings, clearances, transition structures, and access. Alternative overhead routes and an alternative underground route were ruled out because these options fail to preserve or minimize impacts to existing PGE infrastructure. Accordingly, the proposed route best satisfies this criterion because it incorporates the new gen-tie into an existing utility alignment while minimizing unnecessary modifications and conflicts with existing PGE infrastructure, thus minimizing impacts to the system.

2.2 LEAST IMPACT TO FUTURE PGE INFRASTRUCTURE

This criterion was defined to identify a route that would have the least amount of impact on future critical infrastructure (i.e., any upgrades to the Sherwood Substation and associated transmission lines that may occur in the future). This criterion was considered to protect the future reliability of PGE infrastructure and opportunities to grow and expand that infrastructure to meet demand. The needs of the future must be considered because energy use is increasing, energy demand patterns are changing, and threats to energy infrastructure are increasing (e.g., storms, heatwaves and wildfires, cyber and physical security threats, and natural disasters).

Existing PGE infrastructure is shown on Figure 1 and includes the Sherwood Substation and several 115 kV and 230 kV transmission lines. This is critical infrastructure which is required to safely transmit power to the electric grid which serves the City of Sherwood and surrounding areas. The proposed route minimizes impacts to future PGE infrastructure by consolidating the existing 115 kV and new 230 kV lines within an established utility alignment. Replacing the existing poles with steel monopoles capable of accommodating both lines avoid the need to create a new, separate corridor with new poles that could constrain PGE's future use of surrounding areas.

Undergrounding would also occupy space that could affect future PGE infrastructure. Although an underground line would not occupy the same above-ground space as the proposed 230 kV line, the underground cable corridor, vaults, transition facilities, required separation areas, and permanent access requirements would encumber subsurface and surface areas. Those facilities could restrict future excavation, foundations, utility crossings, structure placement, or expansion of facilities associated with the Sherwood Substation. Thus, undergrounding does not necessarily preserve the corridor for future PGE use and could instead introduce a separate set of constraints on future facilities.

Additionally, once constructed, maintenance and repair to overhead lines is significantly less impactful to the surroundings compared to maintenance and repair to underground lines. Repairing an underground line requires excavating, results in down time, and takes longer compared to repairing an overhead line. Thus, the overhead option will be less impactful on future PGE infrastructure because potential damage to an overhead line will be faster to repair, will not require excavation, and will result in minimal downtime.

The proposed route best satisfies this criterion because it consolidates the existing and proposed transmission facilities within an established overhead alignment, minimizes the need to encumber additional areas with separate infrastructure, and will be less impactful to surroundings to maintain and repair.

2.3 TECHNICAL FEASIBILITY

This criterion was defined to identify a route that can realistically be built to meet the technical needs of the project while using current technology and resources. This criterion was considered to identify a route that can be physically built, connected, and operated using available engineering methods and considering site conditions.

The proposed route provides a direct and technically feasible means of connecting the new 230 kV line to PGE's required point of interconnection at the Sherwood Substation. The replacement steel monopoles are designed to accommodate the existing 115 kV line, new 230 kV line, and associated communications facilities while satisfying applicable structural, electrical clearance, safety, reliability, and operational requirements.

The Applicant previously considered an alternative route along the Oregon Department of Transportation right-of-way along Southwest Pacific Highway. However, that route was ruled out as technically infeasible because there is not sufficient space within the right-of-way, either below ground or overhead, to add additional utility infrastructure.

Applicant also considered installation of shorter poles that would only support the 230 kV gen-tie line, but this option was ruled out because of pinch points along the route and limited clearance spacing within the existing utility corridor. Due to spacing constraints and the presence of existing utility infrastructure, it is technically infeasible to add an additional utility line between the City limits and the point of interconnection unless it uses a shared pole design with PGE’s existing 115 kV line.

Undergrounding a 230 kV transmission line presents materially different technical requirements. An underground configuration would require high-voltage cable systems, trenches or duct banks, splice vaults, transition facilities, appropriate cable separation and minimum bend radii, thermal management, and sufficient space for installation, maintenance, repair, and replacement. It also would need to accommodate existing utilities and transition into PGE's fixed interconnection point within the Sherwood Substation. Additional project-specific constraints that make undergrounding the gen-tie impracticable include:

- An underground line would need to cross under Southwest Langer Farms Parkway (this road is between the BESS and the Sherwood Substation) where there is an existing public utilities easement, which includes public utilities such as broadband internet. Because of the presence of existing utilities, cathodic protection would need to be addressed. The underground corridor would also need to support emergency excavation which would have the potential to impact normal operation of the Sherwood Substation and other public utilities in the vicinity.
- The nearby Meadowlark BESS project has proposed an underground gen-tie and because of the interconnection positions of the Meadowlark and Nottingham BESS projects, if the Nottingham gen-tie were also underground, the two gen-tie lines would have to cross as shown in Figure 1, which would effectively de-rate both BESS projects. When two underground utility lines cross, physical proximity between the lines reduces their performance and increases the impact of potential outages if there was a localized disruption in the area (one disruption would cause multiple outages). Putting both lines underground undermines the economics and viability of both projects and increases risks to grid reliability.
- The route of an underground line would have to go underneath the northwest corner of the Sherwood Substation, which is not feasible given the above-ground infrastructure and due to PGE’s operating and maintenance practices.

These requirements are particularly relevant because undergrounding the new 230 kV line would not simply substitute underground cable for the proposed overhead conductor. It would require a materially different system and additional facilities while the existing 115 kV infrastructure must still be accommodated and subject to upgrades in the future; the shared pole design future proofs the design.

Accordingly, the proposed overhead route best satisfies the technical feasibility criterion because it uses an established utility alignment, accommodates both voltage systems on common replacement structures, requires no new additional poles, and provides a direct and practicable connection to PGE's required interconnection point.

2.4 SITE CONTROL

Site control is the legal authority to occupy or develop land. This criterion was evaluated to identify a route for which the Applicant has the legal right to permit and construct the gen-tie. The proposed route best satisfies the site control criterion because it is on property owned by PGE. Because the route uses PGE-owned property to reach the Sherwood Substation, it minimizes the need to obtain new easements, rights-of-way, or other property interests from third-party

landowners. The proposed route therefore provides a direct and practicable means of securing the property rights and access necessary to construct, operate, and maintain the gen-tie.

Undergrounding the gen-tie would not provide a site control advantage over the proposed overhead route. Although an underground alignment could also potentially be located on PGE-owned property, it would require sufficient property for the underground cable corridor and associated facilities, including trenches or duct banks, vaults, transition facilities, and construction and maintenance access. Those facilities could require a larger or different area of PGE property and could restrict PGE's use of the affected surface and subsurface areas for existing or future utility facilities.

Accordingly, the proposed overhead route best satisfies the site control criterion because it uses PGE-owned property and an existing utility alignment while minimizing additional property encumbrances and competing demands on PGE property. Undergrounding the gen-tie would not improve site control and could impose additional restrictions on the use of PGE's property.

2.5 MINIMAL ENVIRONMENTAL IMPACTS

Environmental impacts are the effects of a project on the natural world including air, water, soil, plants, and wildlife. This criterion was defined to identify the route that would have the least impact on the environment. To evaluate the potential environmental impact of different routes, Applicant considered the length of the gen-tie, the presence of existing utility infrastructure, and the installation method (overhead versus underground) and considered potential impacts to air quality, noise, habitat, water, and wildlife.

2.5.1 LENGTH OF GEN-TIE

All else being equal, a shorter gen-tie route would generally result in fewer environmental impacts than a longer route. A longer gen-tie route requires a larger construction area and generally more construction activity, resulting in greater potential for temporary noise, traffic, dust, and air quality impacts. A longer route also increases the area in which soil, vegetation, and habitat may be disturbed and, for an overhead route, increases the extent of above-ground facilities.

The eastern edge of the Sherwood Substation is approximately 200 feet from the Sherwood City limit and therefore represents the shortest gen-tie pathway within City limits to the substation. PGE, however, has no available interconnection capacity on the eastern side of the substation. Because PGE requires the gen-tie to interconnect at the defined point in the northwestern portion of the substation, an alternative approaching from the east would need to continue through the PGE utility corridor to reach that fixed interconnection point.

The proposed route provides the shortest practicable route between the City limit and PGE's required point of interconnection. It therefore minimizes the length of gen-tie facilities and the associated construction and environmental disturbance within the City.

2.6 USE AND SHARING OF EXISTING UTILITY INFRASTRUCTURE

The proposed route follows the alignment of existing PGE transmission facilities and replaces up to five existing wood utility poles with steel monopoles at the vicinity of existing pole locations. The

replacement structures would support both the new 230 kV gen-tie serving the BESS and the re-strung 115 kV PGE transmission line serving the regional grid. This shared configuration avoids the need for separate structures for the two transmission lines and concentrates new ground disturbance at or near locations already disturbed by existing utility facilities.

Alternative routes within the PGE utility corridor that cannot similarly use existing pole locations or share structures would require additional or different structure locations and associated ground disturbance. Thus, the proposed route minimizes environmental impacts by making use of existing infrastructure locations and consolidating the 115 kV and 230 kV lines on common structures.

2.6.1 INSTALLATION METHOD

The Applicant also considered the differing environmental impacts of overhead and underground construction, including impacts associated with construction, operation, maintenance, and repair over the operating life of the gen-tie. Neither installation method eliminates environmental impacts; rather, the nature, extent, and timing of those impacts differ.

Underground construction generally results in greater initial ground disturbance because excavation is required along much of the alignment for trenches or duct banks and associated infrastructure. This construction can result in greater soil and vegetation disturbance and additional temporary noise, dust, traffic, and construction-related air emissions. For the proposed overhead route, ground disturbance would generally be concentrated at structure locations and access areas. Applicant would replace up to five existing utility poles with new steel monopoles at previously disturbed locations, thereby limiting the extent of new ground disturbance.

Overhead and underground facilities also have different potential effects on wildlife. Undergrounding would eliminate the potential for birds to collide with the new 230 kV conductors. However, the proposed route is located within an existing overhead utility corridor where transmission infrastructure is already present. Birds and other wildlife using the area are therefore already exposed and habituated to overhead utility infrastructure within the corridor. The proposed work would not introduce overhead transmission infrastructure into an area where such infrastructure is absent. Instead, it would replace existing poles and co-locate the new 230 kV gen-tie and existing 115 kV transmission line on common structures. While these new common structures will increase the height of lines within the corridor, potential collision risk will be minimized through the installation of bird flight diverters on the conductors to increase line visibility to birds. Appendix H, *PGE Utility Facility Replacement and Interconnection Avian Collision Risk Assessment* provides a qualitative assessment of collision risk associated with the proposed route. Accordingly, while the new conductors may incrementally change the existing collision environment, the proposed route would result in substantially less change than construction of a new overhead utility corridor in an area without existing transmission infrastructure.

The installation methods also differ with respect to potential environmental impacts associated with long-term maintenance and repair. Overhead infrastructure is readily accessible for inspection, allowing damaged or deteriorating components to be identified and accessed without excavation. Maintenance and repairs can generally be conducted at the affected structure or

conductor. Because the proposed route is located within an existing PGE utility corridor, established utility access can also be used for inspection, maintenance, and repair.

Compared to overhead infrastructure, underground infrastructure is less accessible. Locating and repairing damage to an underground cable system can be more complicated and may require access through vaults or excavation to reach the affected cable. Such repairs can require construction equipment, soil disturbance, vegetation removal, and subsequent restoration. Major repairs or eventual replacement could result in renewed ground disturbance along portions of the underground alignment. Thus, although underground infrastructure avoids above-ground conductor maintenance and wildlife collision risks, repairs can result in more intensive ground disturbance when they are required.

Applicant also recognizes that undergrounding the gen-tie would reduce the visual effects associated with the new 230 kV conductors. That benefit is reduced in this location, however, because the proposed route is already occupied by overhead transmission infrastructure. The relevant comparison is therefore not between an overhead line and an otherwise undeveloped landscape, but between modifications to an existing overhead utility corridor and construction of an underground system within that same corridor.

On balance, the proposed overhead installation method minimizes environmental impacts by using an existing utility corridor, concentrating ground disturbance at previously disturbed pole locations, sharing structures between the 115 kV and 230 kV lines, and allowing maintenance and repairs to occur without the excavation that may be necessary for underground installation. Although undergrounding the gen-tie would eliminate the incremental collision risk associated with the new conductors and reduce their visual effects, those benefits are less significant in an established overhead utility corridor where birds and other wildlife are already habituated to utility infrastructure. Moreover, as described in the Technical Feasibility section, undergrounding is not technically feasible for this work. The proposed overhead configuration therefore provides the most reasonable and feasible installation method when the environmental effects of construction, operation, maintenance, and repair are considered together.

3. CONCLUSION

This alternatives analysis evaluated potential routes within the City of Sherwood between the City limit and the point of interconnection at PGE's Sherwood Substation (Figure 1). Considered collectively, the five siting criteria demonstrate that the proposed route is the most reasonable and feasible alternative for the gen-tie within the City of Sherwood. The proposed route minimizes impacts to existing PGE infrastructure by using an existing utility alignment and replacing existing poles with structures capable of supporting both the existing 115 kV line and new 230 kV gen-tie. It minimizes impacts to future PGE infrastructure by consolidating the transmission infrastructure within the existing alignment and avoiding additional infrastructure that could constrain PGE's future use of its property. The route is technically feasible because it provides a direct and constructible means of accommodating both transmission lines and reaching PGE's fixed point of interconnection at the Sherwood Substation. It provides the greatest certainty of site control because the route is located on PGE-owned property and does not require acquisition of property

rights from third-party landowners. Finally, it minimizes environmental impacts by providing the shortest practicable route to the required interconnection point, using previously disturbed locations, sharing structures between the 115 kV and 230 kV lines, and limiting ground disturbance associated with construction, maintenance, and repair.

The Applicant also considered undergrounding the gen-tie under each of the five siting criteria. Although undergrounding the gen-tie would reduce certain above-ground visual and wildlife impacts, it would require separate underground infrastructure, greater excavation and ground disturbance, additional maintenance and repair considerations, and could constrain the use of PGE property for existing and future utility infrastructure. Most importantly, as described in the Technical Feasibility section, undergrounding the gen-tie is not technically feasible for this work. Accordingly, undergrounding does not constitute a reasonable and feasible alternative to the proposed overhead route.

Considering the five siting criteria collectively, the proposed route makes the most efficient use of existing PGE infrastructure and PGE-owned property and provides a direct and technically feasible connection to PGE's required point of interconnection at the Sherwood Substation. This configuration minimizes new infrastructure conflicts, accommodates PGE's existing and future system needs, is technically feasible, reduces the need for additional property rights, and minimizes environmental disturbance compared with establishing a new utility alignment. Applicant therefore determined that the proposed route is the most reasonable and feasible alternative within the City of Sherwood.



Drawn By: Abe Aslanides

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin BIE\Tualatin_BIE.aprx\Alternatives Analysis_ REVISED: 08/13/2026_ SCALE: 1:3,000 when printed at 8.5x11

Legend

- Sherwood City Limits
- Existing Transmission Lines
- Meadowlark Gen-Tie
- Existing Pole
- Replacement Pole
- Point of Interconnection
- Point where gen-tie enters City of Sherwood
- Gen-Tie Route – ruled out as not feasible
- Proposed Route: Existing 115 kV infrastructure to be updated to include 230 kV
- Proposed Utility Infrastructure (Outside City Limits)

N

0 125 250 500

Feet

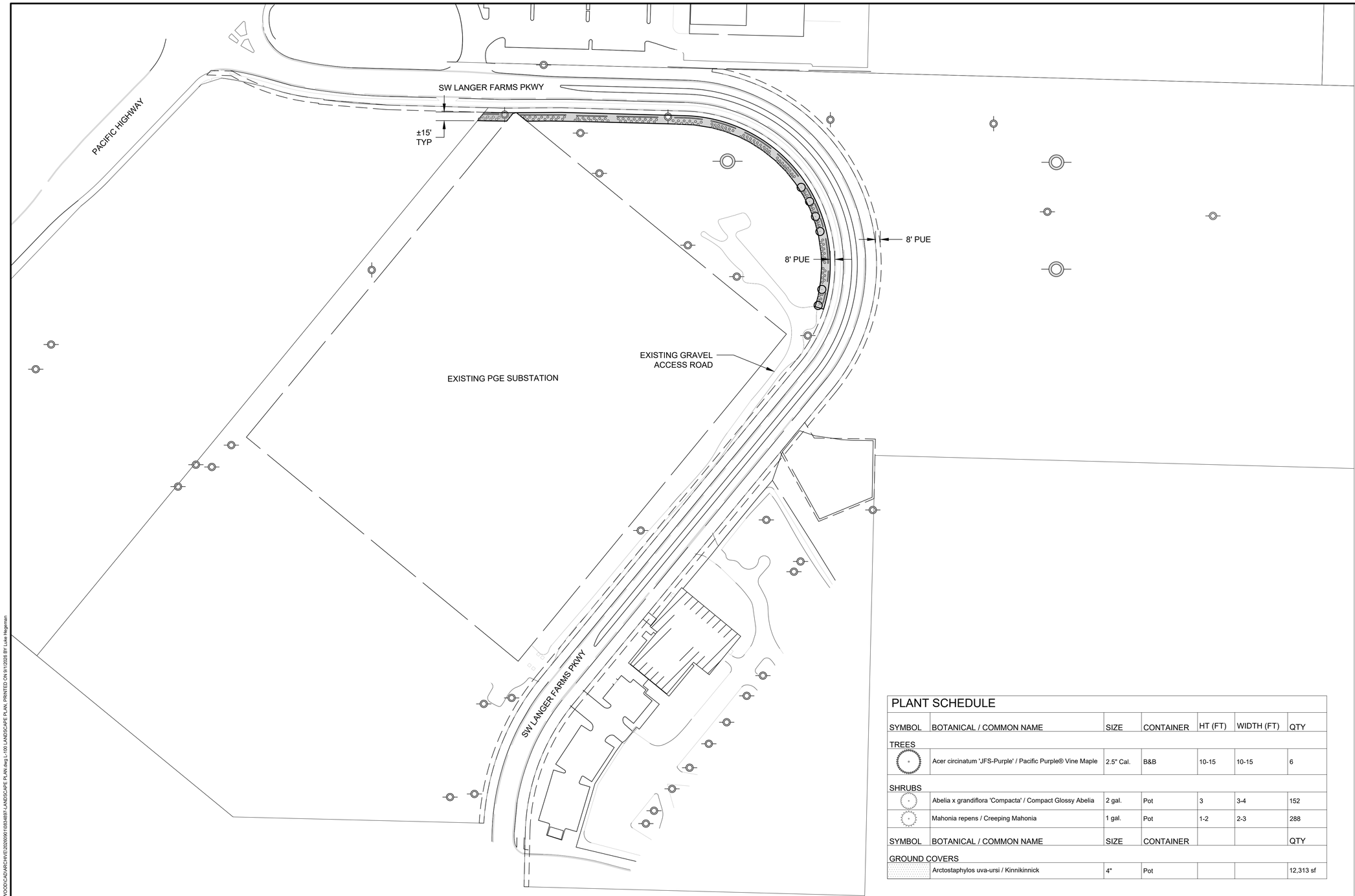
Figure 1
Alternatives Analysis
ERM Inc on behalf of TUAL bn LLC
City of Sherwood, OR

ERM

Source: Esri - World Imagery Map; NAD 1983 HARN StatePlane Oregon North FIPS 3601

Owner: Portland General Electric Company
Drafted: July 7, 2026

APPENDIX J PRELIMINARY LANDSCAPE PLAN



LEGEND

- EXISTING PARCEL LINE
- LIMIT OF DISTURBANCE
- EXISTING TRANSMISSION POLE
- PROPOSED REPLACEMENT TRANSMISSION POLE
- EXISTING R.O.W.
- EXISTING IRRIGATION CONTROLLER

LANDSCAPE AREA = 12,313 SF

PRELIMINARY

PLANT SCHEDULE

SYMBOL	BOTANICAL / COMMON NAME	SIZE	CONTAINER	HT (FT)	WIDTH (FT)	QTY
TREES						
	Acer circinatum 'JFS-Purple' / Pacific Purple® Vine Maple	2.5" Cal.	B&B	10-15	10-15	6
SHRUBS						
	Abelia x grandiflora 'Compacta' / Compact Glossy Abelia	2 gal.	Pot	3	3-4	152
	Mahonia repens / Creeping Mahonia	1 gal.	Pot	1-2	2-3	288
SYMBOL	BOTANICAL / COMMON NAME	SIZE	CONTAINER			QTY
GROUND COVERS						
	Arctostaphylos uva-ursi / Kinnikinnick	4"	Pot			12,313 sf

0 80 FT 160 FT

SCALE: 1" = 80'-0"

Rev.	Date	Description	By	Chk

ERM

LANDSCAPE PLAN
NOT FOR CONSTRUCTION

DISCIPLINE NO. L -

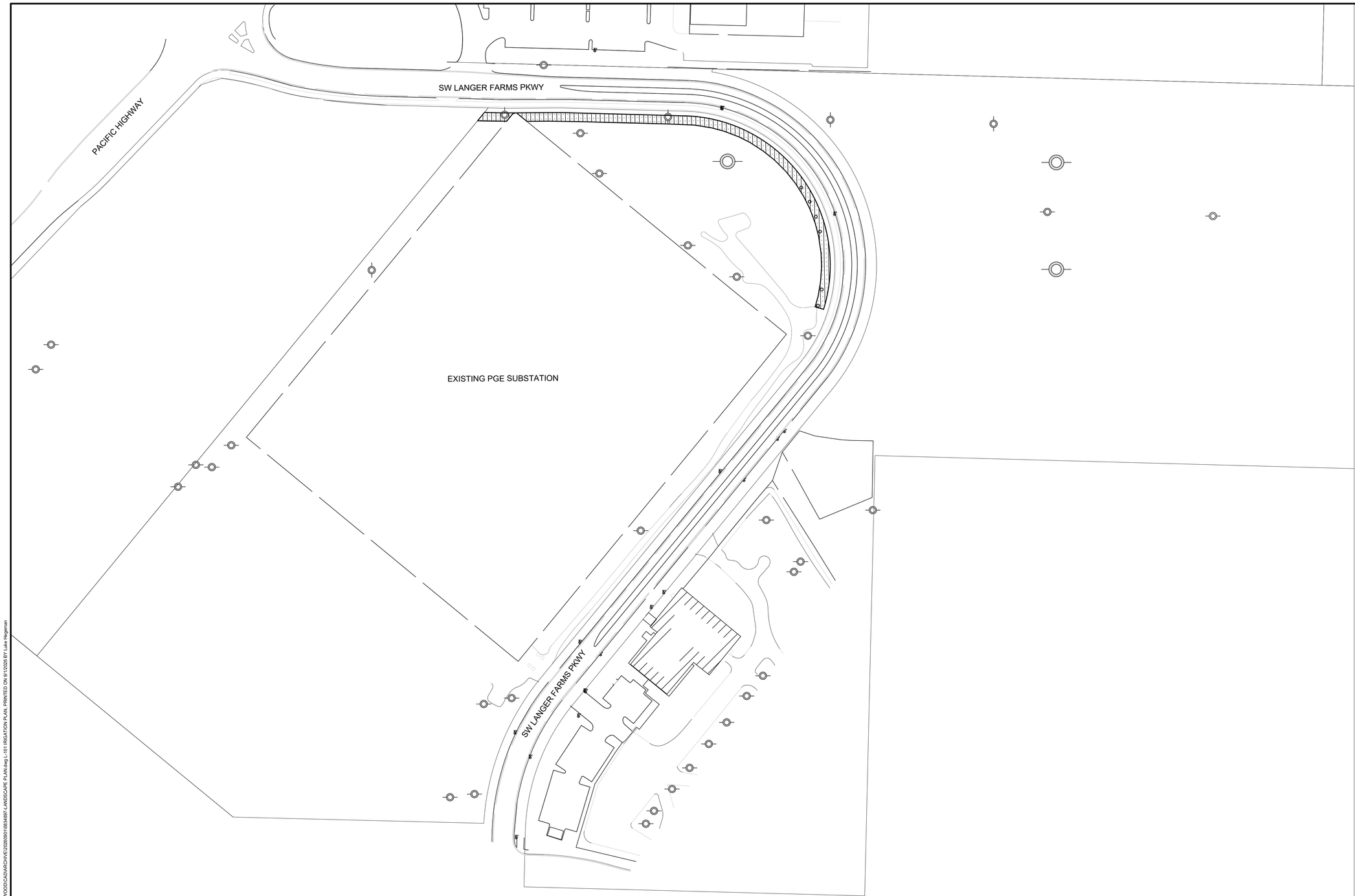
BRIGHTNIGHT SHERWOOD BESS
20655 SW LANGER FARMS PKWY
SHERWOOD, OR 97140

REV. 00

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
1" = 80'	LH	0834897	100
DATE DRAWN: SEPTEMBER 2026	DRAWN BY: LH		

Environmental Resources Management, Inc.

P:\E PATH: C:\Users\luke.hegman\OneDrive - ERM\0834897-BN-SHERWOOD\CAD\ARCH\VE2026\09010834897-LANDSCAPE PLAN.dwg L-100 LANDSCAPE PLAN, PRINTED ON 9/1/2026 BY Luke Hegman



LEGEND

- EXISTING PARCEL LINE
- LIMIT OF DISTURBANCE
- EXISTING TRANSMISSION POLE
- PROPOSED REPLACEMENT TRANSMISSION POLE
- EXISTING R.O.W.
- EXISTING IRRIGATION CONTROLLER

IRRIGATION EQUIPMENT LEGEND

TAG	DESCRIPTION	MANUFACTURER / MODEL
	Dripline, 0.9 GPH emitters @ 24" O.C.	Rain Bird XFS-09-24
O	Root Watering System, one per tree	Rain Bird RWS
	Pressure-regulating filter, 30 psi outlet	Rain Bird PRF-030-RBY
	Zone valve, latching solenoid	Rain Bird DV Series
	Bluetooth Capable controller, valve-mounted	Rain Bird ESP-BAT-BT
	Mainline / lateral piping, poly, insert fittings	Poly pipe, insert fittings + clamps

(no solvent-welded PVC - system is temporary)

QUANTITY TAKEOFF (822 LF TOTAL CORRIDOR)

ITEM	QTY	NOTES
Dripline tubing	2,800-3,200 LF	approx. 3.5-4 rows across 7' bed
Emitters (integral)	1,500-1,600	@ 24" O.C. along dripline
Quick connect couplers	3	Install at 250' intervals
Trees @ 30' O.C.	6	1 RWS unit per tree
RWS units	6	1:1 with tree count
Zone valves (IR-4)	7	
Controllers (IR-5)	7	1 per zone valve
Pressure-regulating filters	7	1 per zone

ZONE SCHEDULE

ZONE	LENGTH	TREES	RWS UNITS	DESIGN FLOW (GPM)
1 - 7	768 LF	6	5	approx. 4.5 GPM
8	54 LF	0	0	approx. 2.5 GPM

NOTE: Zone count and boundaries shown are preliminary, based on a design ceiling of 5 GPM/zone at assumed 40 psi static pressure. Final zone layout to be field-confirmed - see General Note 18.

IRRIGATION RUN-TIME SCHEDULE

PERIOD	FREQUENCY	DURATION
Year 1, Apr - Oct	3x per week	45 min
Year 1, Nov - Mar	1x per week	20 min
Year 2, Apr - Oct	2x per week	30 min
Year 2, Nov - Mar	as needed	--
Year 3	system removed - see General Note 23	

NOTE:
1. IRRIGATION SYSTEM DESIGN IS BASED ON ASSUMED STATIC PRESSURE OF 40 PSI AND A MAXIMUM ZONE DEMAND OF 5 GPM AT THE POINT OF CONNECTION. ACTUAL SITE WATER SOURCE, STATIC PRESSURE, AND AVAILABLE FLOW HAVE NOT BEEN FIELD-VERIFIED AS OF THIS SUBMITTAL. SEE GENERAL NOTE 18 REGARDING POINT OF CONNECTION. CONTRACTOR SHALL FIELD-VERIFY POINT OF CONNECTION, STATIC PRESSURE, AND AVAILABLE FLOW PRIOR TO INSTALLATION AND SHALL NOTIFY THE LANDSCAPE ARCHITECT OF RECORD IF FIELD CONDITIONS VARY SUBSTANTIALLY FROM DESIGN ASSUMPTIONS, FOR ADJUSTMENT OF ZONE COUNT, EMITTER COUNT, OR VALVE SIZING AS NEEDED.

PRELIMINARY

0 80 FT 160 FT

SCALE: 1" = 80'-0"

Rev.	Date	Description	By	Chk

ERM

TEMPORARY IRRIGATION PLAN
NOT FOR CONSTRUCTION

DISCIPLINE NO.: L -

BRIGHTNIGHT SHERWOOD BESS
20655 SW LANGER FARMS PKWY
SHERWOOD, OR 97140

REV.: 00

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
1" = 80'	LH	0834897	101
DATE DRAWN: SEPTEMBER 2026	DRAWN BY: LH		

Environmental Resources Management, Inc.

FILE PATH: C:\Users\luke.hegeman\OneDrive - ERM\0834897-BN-SHERWOOD\CAD\ARCHIVE\20260901\0834897-LANDSCAPE PLAN.dwg [L-101 IRRIGATION PLAN, PRINTED ON 9/1/2026 BY Luke Hegeman

LANDSCAPE PLAN — GENERAL NOTES

GENERAL

1. ALL LANDSCAPE WORK SHALL CONFORM TO CITY OF SHERWOOD ZONING AND COMMUNITY DEVELOPMENT CODE CHAPTER 16.92 (LANDSCAPING) AND THE ADAMS AVENUE NORTH CONCEPT PLAN.
2. LANDSCAPING IS INTENDED TO ESTABLISH AN IMPROVED VISUAL CORRIDOR AND IS NOT INTENDED AS VISUAL SCREENING OF THE SUBSTATION OR GEN-TIE FACILITIES.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO INSTALLATION. NOTIFY LANDSCAPE ARCHITECT OF RECORD OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS BEFORE PROCEEDING.
4. ALL WORK SHALL COMPLY WITH APPLICABLE PGE RIGHT-OF-WAY ACCESS REQUIREMENTS AND EASEMENT CONDITIONS. PGE RETAINS THE RIGHT TO REMOVE OR REQUIRE RELOCATION OF ANY VEGETATION, AT ANY TIME, TO ACCESS, INSPECT, OPERATE, OR MAINTAIN ELECTRICAL EQUIPMENT.

PLANT MATERIAL & QUALITY STANDARDS (SZDC 16.92.020)

5. PLANT MATERIAL SHALL BE SELECTED FROM THE CITY'S "SUGGESTED PLANT LISTS FOR REQUIRED LANDSCAPING MANUAL" , AND/OR VERIFIED AS SUITABLE FOR THE PACIFIC NORTHWEST CLIMATE BY THE LANDSCAPE ARCHITECT OF RECORD, AND APPROVED BY PGE LANDSCAPE SUPERVISOR IN WRITING.
6. NO PLANT SPECIES LISTED ON THE CITY'S NUISANCE PLANTS LIST SHALL BE USED.
7. NO TREE OR SHRUB WITHIN THE LANDSCAPE CORRIDOR SHALL EXCEED FIFTEEN (15) FEET IN HEIGHT AT MATURITY, AND NO WOODY PLANT MATERIAL SHALL BE PLACED WITHIN THIRTY (30) FEET OF ANY TRANSMISSION TOWER, POLE, OR GROUND-BASED STRUCTURE, PER PGE VEGETATION CLEARANCE STANDARDS.
8. TREES: MINIMUM 2" CALIPER, MINIMUM 6' HEIGHT AT PLANTING, FULLY BRANCHED, PER SZDC 16.92.020.A.3.
9. SHRUBS: MINIMUM 1-GALLON CONTAINER SIZE, SIZED TO REACH FULL GROWTH WITHIN THREE (3) YEARS, PER SZDC 16.92.020.A.2.
10. GROUND COVER: MINIMUM 4" POT SIZE, SPACED TO ACHIEVE FULL COVERAGE WITHIN THREE (3) YEARS, PER SZDC 16.92.020.A.1. MULCH IS NOT A SUBSTITUTE FOR GROUND COVER.
11. ARTIFICIAL PLANT MATERIAL IS PROHIBITED IN ALL REQUIRED LANDSCAPE AREAS PER SZDC 16.92.020.D.3.
12. NO TREE MAY BE PLANTED WITHIN 20 FT OF ANY UTILITY VAULT, PAD MOUNT TRANSFORMER, HYDRANT, LAMP POST OR SIMILAR ON GROUND EQUIPMENT.
13. NO SHRUB WILL BE PLANTED WITHIN 10 FT OF ANY UTILITY VAULT, PAD MOUNT TRANSFORMER, HYDRANT, LAMP POST OR SIMILAR ON GROUND EQUIPMENT.
14. NO GROUND COVER WILL BE PLANTED WITHIN 3FT OF ANY UTILITY VAULT, PAD MOUNT TRANSFORMER, HYDRANT, SIMILAR ON GROUND EQUIPMENT. 2 FT MINIMUM DISTANCE FROM GROUNDCOVER TO SIDEWALK.

INSTALLATION STANDARDS (SZDC 16.92.040.A)

15. ALL LANDSCAPE MATERIALS SHALL BE INSTALLED IN-GROUND, TO CURRENT NURSERY INDUSTRY STANDARDS.
16. ALL TREES SHALL BE STAKED/GUYED AS NEEDED FOR SUPPORT; STAKING DEVICES SHALL NOT INTERFERE WITH PEDESTRIAN OR VEHICULAR MOVEMENT AND SHALL BE REMOVED AFTER ESTABLISHMENT (TYPICALLY 1–2 GROWING SEASONS).
17. TOPSOIL AND SUBSOIL SHALL BE PREPARED PER PLANTING DETAILS PRIOR TO INSTALLATION; AMEND ON-SITE SOILS AS NEEDED PER SOIL TEST RECOMMENDATIONS.
18. PROVIDE MINIMUM 3" DEPTH BARK MULCH IN ALL PLANTING BEDS, KEEPING MULCH CLEAR OF PLANT CROWNS/ROOT FLARES.
19. CALL 811 MINIMUM TWO (2) BUSINESS DAYS PRIOR TO ANY EXCAVATION OR DIGGING TO LOCATE UNDERGROUND UTILITIES.

IRRIGATION (SZDC 16.92.040.C - OPTION 2)

20. A TEMPORARY DRIP IRRIGATION SYSTEM, DESIGNED AND CERTIFIED BY THE LANDSCAPE ARCHITECT OF RECORD, SHALL BE PROVIDED TO ENSURE PLANT ESTABLISHMENT, PER SZDC 16.92.040.C, OPTION 2. THE SYSTEM IS NOT REQUIRED TO BE PERMANENT, AS THE SPECIFIED PLANT PALETTE IS DROUGHT-TOLERANT AND SELF-SUSTAINING ONCE ESTABLISHED.
21. IRRIGATION POINT OF CONNECTION HAS NOT BEEN CONFIRMED AT TIME OF THIS SUBMITTAL. EXISTING IRRIGATION CONTROL VALVES (ICV) SHOWN ON THE BASE SURVEY MAY SERVE AS A TIE-IN POINT, PENDING CONFIRMATION OF SOURCE AND CAPACITY WITH THE PROJECT CIVIL ENGINEER. A TEMPORARY ABOVE-GROUND TANK WITH SOLAR-POWERED PUMP SHALL BE PROVIDED AS A FALLBACK IF NO SUITABLE EXISTING SOURCE IS AVAILABLE.
22. PROVIDE BACKFLOW PREVENTION ASSEMBLY AT POINT OF CONNECTION WHERE TIED TO A POTABLE WATER SOURCE. NOT APPLICABLE IF TEMPORARY TANK/PUMP SOURCE IS USED.
23. PROVIDE COMBINATION PRESSURE-REGULATING FILTER (RAIN BIRD PRF-030-RBY OR APPROVED EQUAL) AT EACH ZONE, REGULATING TO 30 PSI.
24. IRRIGATION ZONES ARE DIVIDED BY LINEAR FOOTAGE AND DESIGN FLOW CAPACITY (APPROXIMATELY 150 LF PER ZONE, MAXIMUM 5 GPM PER ZONE), NOT BY PLANT TYPE, TO ACCOMMODATE THE ASSUMED WATER SOURCE CAPACITY. SEE IRRIGATION SCHEDULE, L-101.
25. CONTROLLER: RAIN BIRD TBOS-II BATTERY-OPERATED, VALVE-MOUNTED CONTROLLERS, ONE PER ZONE VALVE, PROGRAMMED VIA MANUFACTURER'S HANDHELD/BLUETOOTH PROGRAMMING TOOL.
26. SYSTEM SHALL REMAIN IN PLACE FOR A MINIMUM OF TWO (2) GROWING SEASONS, OR UNTIL PLANT ESTABLISHMENT IS CONFIRMED, AFTER WHICH THE SYSTEM SHALL BE DECOMMISSIONED. DRIPLINE, MAINLINE/LATERAL PIPING, VALVES, AND CONTROLLERS SHALL BE REMOVED AT THAT TIME. ROOT WATERING UNITS (RWS), BEING INERT ONCE DISCONNECTED FROM THE WATER SUPPLY, MAY REMAIN IN PLACE AT OWNER'S DISCRETION. MAINLINE AND LATERAL PIPING SHALL BE POLYETHYLENE WITH INSERT FITTINGS TO ALLOW FULL REMOVAL; SOLVENT-WELDED PVC SHALL NOT BE USED.
27. IRRIGATION SCHEDULE: SEE IRRIGATION SCHEDULE TABLE, L-101.

MAINTENANCE & SECURITY (SZDC 16.92.040.B, D)

28. ALL LANDSCAPING SHALL BE MAINTAINED IN A MANNER CONSISTENT WITH THE INTENT OF THIS APPROVED LANDSCAPE PLAN.
29. ANY REQUIRED LANDSCAPE TREE THAT DIES OR IS REMOVED SHALL BE REPLACED IN-KIND BY THE PROPERTY OWNER. THIS OBLIGATION IS CONTINUOUS FOR THE LIFE OF THE DEVELOPMENT, CONSISTENT WITH THIS PLAN AND SZDC 16.142. (IF A CITY LANDSCAPE MAINTENANCE BOND IS REQUIRED, IT SHALL BE HELD BY THE CITY OF SHERWOOD FOR A PERIOD OF TWO YEARS FOLLOWING TOTAL INSTALLATION APPROVAL).
30. IF LANDSCAPING IS NOT INSTALLED PRIOR TO FINAL APPROVAL, A FINANCIAL SECURITY EQUAL TO 125% OF THE ESTIMATED INSTALLATION COST SHALL BE POSTED WITH THE CITY OF SHERWOOD PER SZDC 16.92.040.D. THE FORM OF SECURITY SHALL BE A PERFORMANCE BOND, CASH, OR CERTIFIED CHECK PAYABLE SOLELY TO THE CITY OF SHERWOOD.

UTILITY & SAFETY NOTES

31. ALL LANDSCAPE WORK SHALL BE COORDINATED WITH PGE AND THE PROJECT'S PGE PROJECT MANAGER AND PGE LANDSCAPE SUPERVISOR OR DELEGATE REGARDING TOWER/POLE LOCATIONS, ACCESS ROAD CLEARANCES, AND ANY ADDITIONAL UTILITY-SPECIFIC VEGETATION RESTRICTIONS BEYOND THOSE NOTED ABOVE.
32. LANDSCAPE CORRIDOR WIDTH VARIES DUE TO EXISTING ACCESS ROAD ALONG THE EAST PERIMETER; FINAL PLANTING LAYOUT SHALL AVOID CONFLICTS WITH ACCESS ROAD CLEARANCE AND GEN-TIE STRUCTURES.

FILE PATH: C:\Users\kate.hagmann\OneDrive - ERM\0834897-BN-SHERWOOD\CAD\ARCHIVE\20260901\0834897-LANDSCAPE PLAN.dwg L-102 LANDSCAPE NOTES, PRINTED ON 9/1/2026 BY Lake Hagmann

PRELIMINARY

Rev.	Date	Description	By	Chk

ERM

LANDSCAPE NOTES
NOT FOR CONSTRUCTION

DISCIPLINE NO. L -

BRIGHTNIGHT SHERWOOD BESS
20655 SW LANGER FARMS PKWY
SHERWOOD, OR 97140

REV. 00

SCALE	DESIGNED BY	PROJECT NUMBER	SHEET NO.
N.T.S.	LH	0834897	102
DATE DRAWN: SEPTEMBER 2026	DRAWN BY: LH		

Environmental Resources Management, Inc.

APPENDIX K NOTTINGHAM BESS CUP AND SITE PLAN APPROVAL

WASHINGTON COUNTY
Department of Land Use & Transportation
Current Planning Services Division
155 North First Avenue, Suite #350-13
Hillsboro, Oregon 97124-3072
phone: (503) 846-8761 fax: (503) 846-2908
www.co.washington.or.us

NOTICE OF DECISION & STAFF REPORT

PROCEDURE TYPE II

CPO: 5

RURAL/NATURAL RESOURCE PLAN LAND USE DISTRICTS:
EFU (Exclusive Farm Use) District

PROPERTY DESCRIPTION:

ASSESSOR MAP:	TAX LOT NUMBER(S):
2S1 20D	1100, 1200, 700
2S1 29A	801, 1651

LOT SIZE:
75.70 acres

LOCATION: On the east side of SW Pacific Highway, approximately 1000 feet north of its intersection with SW Langer Farms Parkway.

CASEFILE: L2400314-SU/D

APPLICANT:
TUAL bn LLC (Todd Ellwood)
515 N Flagler Drive Ste P200
West Palm Beach, FL 33401

APPLICANT'S REPRESENTATIVE:
ERM (Richard Peel)
1201 3rd Ave, Seattle, WA 98101

OWNER of TAX LOT 2S120D001100 (BESS):
Daniel and Lia Gherman/Gheorghe and Maria Schiriac
19630 SW Pacific Highway, Sherwood, OR 97140

OWNER of TAX LOT 2S120D001200 (BESS):
Tony and Deann Amstad Revocable Trust
PO Box 890, Hermiston OR 97838

OWNER of TAX LOTS 2S120D000700 & 2S129A00801:
Lazy U Ranch LLC by Tanya Durkee Urbach
23775 SW Stonehaven St, Sherwood OR 97140

OWNER of TAX LOT 2S129A001651:
Portland General Electric Co
121 SW Salmon Street, Portland OR 97204

PROPOSED DEVELOPMENT ACTION: Special Use & Development Review for a Public Utility Necessary for Public Service (Battery Energy Storage System & Above-Ground Transmission Poles) in the EFU District

DECISION:

Approval _____ **Approval with Conditions** ✓ **Denial** _____

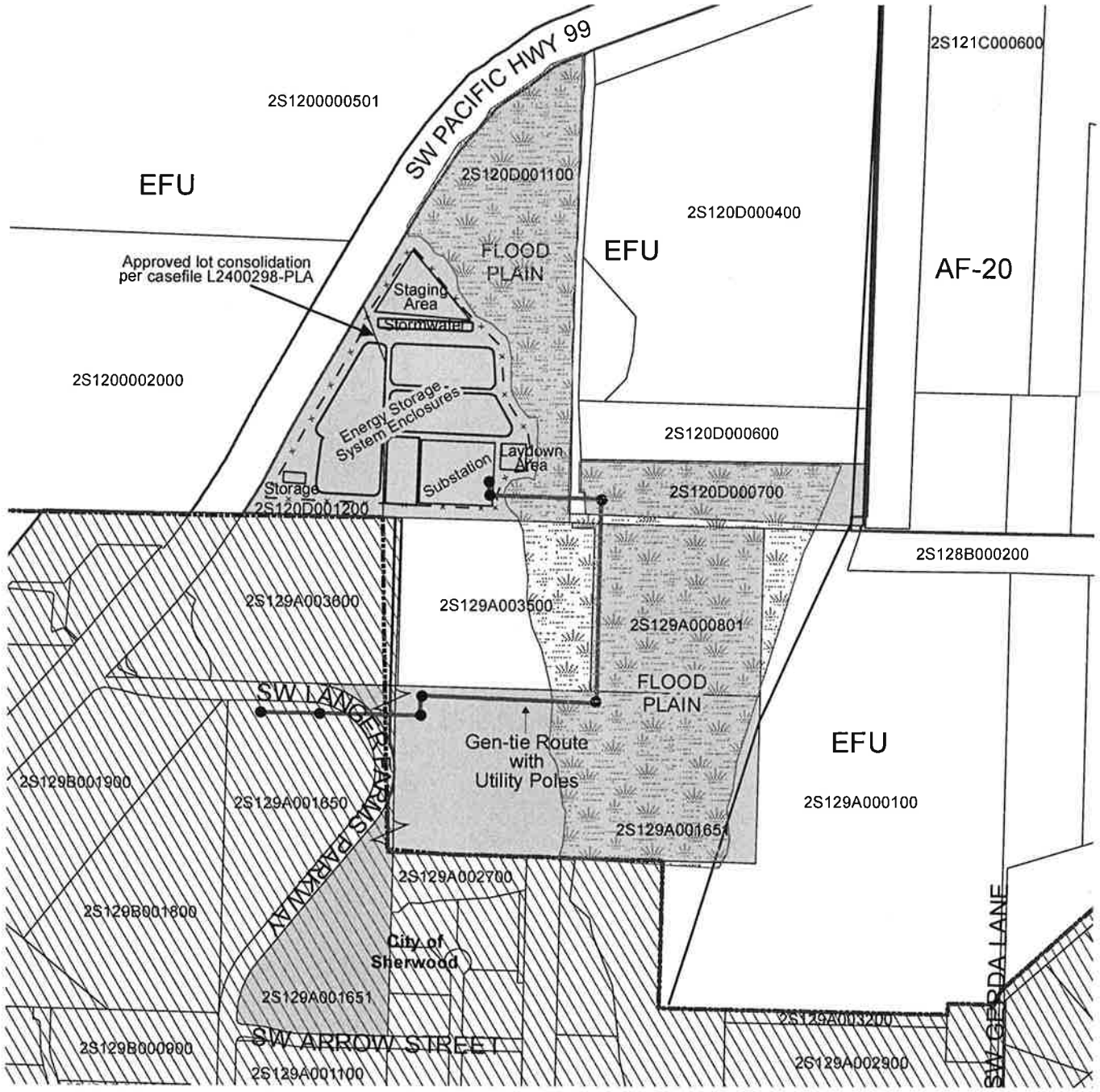
Signature _____ **Date** 5-16-25
Stephen Shane, Current Planning Section Manager, Current Planning Services

Staff Planner: Maitreyee Sinha, 503-846-3835

Attachments:
A. -- Vicinity Map
B. -- **CONDITIONS OF APPROVAL**
C. -- Staff Report
D. -- Appeal Information

Appendix K
ATTACHMENT A VICINITY MAP

TAX MAP/LOT NO. 2S120D0 00700, 01100, 01200; 2S129A0 00801 & 01651 CASEFILE / PROJECT #: L2400314-SU/D



↑ NORTH

AREA OF CONSIDERATION

NOT TO SCALE

SITE & SURROUNDING LAND USE DISTRICTS:

EFU District (Exclusive Farm Use)
AF-20 District (Agriculture and Forest)
Urban Growth Boundary
R-15 District (Residential 15 units/acre)
City of Sherwood

REVIEW STANDARDS FROM CURRENT OR APPLICABLE ORDINANCE OR PLAN

A. Washington County Comprehensive Plan
B. Applicable Community Plan (See Front of Notice)
C. Transportation System Plan
D. Washington County Community Development Code:
   - ARTICLE I, Introduction & General Provisions
   - ARTICLE II, Procedures
   - ARTICLE III, Land Use Districts
   - ARTICLE IV, Development Standards
   - ARTICLE V, Public Facilities and Services
   - ARTICLE VI, Land Divisions & Lot Line Adjustments
   - ARTICLE VII, Public Transportation Facilities
E. R & O 86-95 Traffic Safety Improvements
F. ORD. NO. 738, Road Design and Construction Standards
G. ORD.691-A, 729, 741, 746, 751, 793-A Transp. Development Tax

Attachment B
CONDITIONS OF APPROVAL

I. **In accordance with Section 201-4, this permit shall automatically expire within four (4) years of the date of approval, unless: the permit is revoked as provided by Section 201-7; an application for a permit extension is filed pursuant to Section 201-5; or, development has commenced as provided in Section 201-6.**

II. **Prior to submittal of any Building or Grading permit to develop the subject site (Tax Lots 2S1 20D 1100 and 1200 only), submit to Current Planning Services (503-846-8761) evidence of recordation and filing of the property line adjustment approved via Casefile L2400298-PLA.**

III. **Prior to submittal of any Building or Grading permit for placement of the transmission poles (on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651 only), submit to Current Planning Services (503-846-8761) evidence of approval of land use application # S2500076. Placement of the above-ground poles will be subject to the requirements stipulated in the decision for application #S2500076. Evidence of utility easements on the above tax lots are also required. (Section 421)**

IV. **Prior to demolition of the two dwellings on Tax Lots 2S1 20D 1100 and 1200, a demolition permit must be obtained. (Section 207-5)**

V. **Prior to any Ground-Disturbing Activities and issuance of a Grading Permit for the Battery Energy Storage Facility, the Applicant Shall:**

A. **Submit to the Current Planning Services Division (503-846-8761) evidence of the following:**

1. A right-of-way permit (or an exemption thereof) has been obtained from Oregon Department of Transportation (ODOT) for access to SW Pacific Highway (Highway 99), for construction work and for the purpose of maintenance, repair, and reconstruction. (Section 207-5)

2. The applicant's engineer has inspected all public roads providing access to the construction site to document pre-construction road conditions. (Section 430-105.4)

3. A signed and recorded waiver of the right of remonstrance against accepted farm/forest practices on surrounding properties has been signed by the property owner and recorded with the Recording Section of the Assessor's Office. The recorded waiver runs with the land as a covenant to the deed. A form for this purpose is available at the Current Planning Services counter (503-846-8761). (Section 340)

B. **Submit to the Building Services Division (503-846-2846) a grading permit application (Sections 410 and 426). The grading permit application shall include information as determined necessary by the Building Engineer, which may include:**

1. A site-specific geotechnical engineering report with recommendations for site development. The report should be stamped and signed (electronic signature accepted) by an Oregon-registered engineer.

2. A drainage analysis report prepared and stamped by an Oregon-registered engineer showing that any additional impervious areas resulting from the proposed work will not impact surrounding properties negatively.

3. Structural details regarding the private road/parking lot on the plans per site specific geotechnical engineering recommendations.

4. Besides the above items, all requirements given on the Building Services Grading Permit application form.

VI. Prior to Issuance of Building Permits for the Proposed Facility:

A. Submit to Current Planning Services (503-846-8761):

1. A noise study certified by an acoustic engineer evaluating noise levels generated by the facility to demonstrate compliance with Washington County Code of Ordinances Chapter 8.24 or as amended, and any other applicable regulations regarding noise limits, taking into consideration avoidance, minimization, and mitigation measures. (Section 423 and 207-5)

B. Submit to Building Services (503-846-3470):

1. Site plan substantially compliant with plan(s) stamped 'Preliminary Approval' in the casefile (Section 207-5)

2. Evidence that a right-of-way permit (or an exemption thereof) has been obtained from Oregon Department of Transportation (ODOT) for access on to SW Pacific Highway.

3. Evidence of utility easements on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651 prior to placement of transmission poles, or on other off-site properties/right-of-way (if applicable) that will be utilized by the proposed development. (Section 207-5)

4. Payment of applicable System Development Charges (SDCs) and Transportation Development Tax (TDT), as applicable. (Section 207-5)

   Note: TDT shall be required as determined by Ordinance 793-A.

VII. Prior to Final Inspection Approval/ Occupancy of the proposed Facility:

A. Submit to the Current Planning Services (503-846-8761):

1. Evidence of final approval of a right-of-way permit (or an exemption thereof) from Oregon Department of Transportation (ODOT) for access on to SW Pacific Highway.

2. Evidence of installed fencing and vegetated landscaping (as depicted on applicant's submitted landscaping plan) around the perimeter of the proposed development, and fencing/wall/landscaping around the battery storage area for noise attenuation if determined necessary for compliance with applicable regulations. (Sections 411 and 423)

3. Final inspection approval of the demolition permits required by Condition IV. of this decision.

4. Evidence of a minimum of four (4) parking spaces on the project site. All parking spaces must be surfaced in accordance with the requirements of Section 413.

5. Request a site visit by staff planner (Maitreyee Sinha, 503-846-3835) for determining conformance of the completed development with that approved. (Section 207-5)

Appendix K

VIII. Additional Conditions:

A. Within 90 days of completing construction of the battery energy storage system, the applicant shall provide to Current Planning Services Division (503-846-8761):

1. Certification from a registered professional engineer that all public roads used to access the construction sites have been returned to their pre-construction condition or better. (Section 207-5)

2. Evidence that all disturbed areas have been re-vegetated pursuant to provisions of Section 410-3. Re-vegetation with native plants is strongly encouraged.

B. This development shall be constructed in accordance with the conditions of this decision, the approved plans, and the standards of the Community Development Code. (Section 207-5)

C. Excess soils from construction of the project (if any) must be placed in an approved location consistent with grading reviews and required permits. (Section 410)

D. Construction activities subject to requirements of Section 410 (Grading and Drainage) and Section 426 (Erosion Control) require submittal and approval of appropriate plans to Building Services prior to commencement of construction.

E. Sign permits are required prior to installation of any signage on the site. Signage is subject to standards stipulated in Section 414.

F. Applicant is responsible for obtaining applicable local, state, and federal permits for any disturbance within riparian corridors and *Water Areas and Wetlands*. (Section 422)

G. Applicant is responsible for understanding and complying with the Washington County Noise Ordinance (Washington County Code of Ordinances Chapter 8.24 or as amended).

H. Temporary construction staging areas are allowed within or adjacent to the project corridor and must be removed and returned to original use (as applicable) within 90 days of project completion. (Section 207-5)

I. Upon decommissioning and/or deconstruction of the proposed facility, the subject site shall be replanted with native vegetation, restored to agricultural uses, or restored to its pre-construction condition or better. All decommissioning and deconstruction is subject to applicable federal, state, and local agency regulations. (Section 207-5)

NOTE: Any future home on the subject site will require land use review per applicable land use criteria in effect at that time. (Sections 207-5 and 430-37.2)

J. This approval is based on the site plan stamped 'Preliminary Approval' in the casefile, and the uses described in this application. All approved uses and activities are limited to those described in this approval. Any changes to the approved plan or uses may require subsequent land use review and approval through the development review process. (Section 207-5)

Attachment C
STAFF REPORT

I. APPLICABLE STANDARDS:

A. Washington County Comprehensive Framework Plan (Rural/Natural Resource Plan Element)

B. Washington County Community Development Code:

1. Article II, Procedures:
Section 202-2 Type II Procedure
Section 207-5 Conditions of Approval

2. Article III, Land Use Districts:
Section 340 EFU District Standards
Section 379 Mineral and Aggregate Overlay District

3. Article IV, Development Standards:
Section 403 Applicability
Section 410 Grading and Drainage
Section 421 Flood Plain and Drainage Hazard Area Development
Section 422 Significant Natural Resource
Section 423 Environmental Performance Standards
Section 426 Erosion Control
Section 430-105 Public Utility

4. Article V, Public Facilities and Services
Section 501-9 Limited Application of the Public Facility and Service Standards Outside the UGB

II. AFFECTED JURISDICTIONS

Tualatin Valley Fire and Rescue
Oregon Water Resources Department
Oregon Department of State Lands
Washington County Sheriff's Office

III. FINDINGS

Background

1. The applicant requests approval for a battery energy storage system (BESS) to be developed in conjunction with the sole PGE electric substation located in Sherwood. The applicant states the facility is integral to PGE's ability to meet state mandated emission goals stipulated in Oregon House Bill 2021.

2. The subject site consists of two parcels (2S1 20D 1100 and 1200) that were recently approved a lot consolidation (L2400298-PLA) to allow siting of the facility. The consolidation must be recorded and filed with the County prior to applying for any permits associated with this facility. The applicant also proposes placement of above-ground poles to support transmission lines on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651 that connect the BESS to the PGE Sherwood substation to its south.

3. The subject site is zoned EFU, lying partially within Metro's designated Urban and Rural Reserves. The BESS lies entirely within the urban reserve portion of the site. The proposed transmission lines lie further east within designated rural reserves. Utility poles will need to be sited to support

transmission lines connecting the BESS to the substation. The proposed project will utilize approximately 15 acres of the subject site.

4. The proposed facility will be a fenced and gated enclosure containing several lithium-ion energy batteries installed in racks within enclosures, inverters, switchgear, and other associated equipment to interconnect into the PGE substation operations in Sherwood, south of the subject site. The applicant states the batteries will be housed in containers that will be designed and installed in conformance with the nationally recognized National Fire Protection Association (NFPA) standards for Installation of Stationary Energy Storage Systems. The facility will be controlled remotely with periodically scheduled inspections and maintenance services. A chain link security fence and vegetated landscaping will be installed along the perimeter of the development. Additional measures for noise attenuation may be required—refer to Section 423 of this report.

5. The applicant states that at the end of the operational term of the BESS, the site will be decommissioned or deconstructed in accordance with applicable federal, state and local agency regulations. Practices will be implemented to ensure collection and recycling of batteries with the intent to avoid the potential for batteries to be disposed of as municipal waste. The applicant states that all material will be deconstructed responsibly. The establishment of this facility does not preclude the ability of the land to be employed in agricultural use in the future. Staff notes that the existing dwellings at the subject site will be demolished to facilitate placement of the BESS. Any new subsequent dwelling will be subject to land use standards in effect at the time of request.

6. Oregon House Bill 2021 (Clean Energy Bill) was signed into law on July 19, 2021 and requires retail electricity providers that sell to Oregon consumers to meet greenhouse gas emission reduction goals of 80% below baseline emission levels by 2030, 90% by 2035, and 100% by 2040. The BESS would furnish electricity by providing a stored supply that can be accessed later: the proposed facility will provide a utility service to the regional electric grid by receiving energy (charging) from the PGE substation, storing the energy on site, and later discharging that energy back into the grid as needed.

7. House Bill 4015, effective June 2024, allows establishment of BESS facilities that (a) collect energy from an electric grid or energy generation facility; (b) uses rechargeable batteries to retain and store energy for a set period of time; and (c) discharges the stored energy to provide electricity as needed. Though the Bill allows the permitting of a BESS through the Energy Facility Siting Council (EFSC), an applicant nonetheless needs to demonstrate compliance with applicable land use standards of the jurisdiction where they are located. Washington County's Community Development Code (CDC/Code) does not expressly state that a BESS is a permitted land use. However, based on the information contained in the application materials, staff finds that a BESS can meet the definition of a public utility as permitted under Section 430-105 because of the similarity in nature of use and service provided. The facility proposed will consist of corporate-owned equipment for storage, furnishing, and transmission of electricity. It consists of equipment and structures within an enclosed area for storing, switching and regulating electricity demands at the PGE Sherwood electricity substation, and thereby the regional electricity grid. This interpretation is consistent with the purpose and underlying policy that provides the basis of this code standard. Section 430-105 is addressed later in this report. Further, the applicant's narrative addresses why it is necessary to site the facility in the EFU district, as discussed in Section 340 of this report.

8. In addition to the BESS, the applicant proposes above-ground utility poles to extend transmission lines from the facility to the PGE substation. One option under consideration is via existing ODOT utility infrastructure present along SW Pacific Highway, within the City of Sherwood limits (Option 1). The other alternative (Option 2) proposed by the applicant lies to the east of the subject site utilizing the shortest possible connection over adjoining properties. Option 2 requires locating above-ground poles within the 100-year flood plain of Rock Creek, triggering further review

pursuant to Section 421-4.5 is required. To this end, an application has been submitted (# S2500076) and is currently under review.

9. The north and eastern portion of the site are located within the 100-year floodplain of Rock Creek; therefore, this development is subject to review under Section 421 which regulates development within the 100-year floodplain. Placement of all structures associated with the BESS is proposed outside the delineated extent of the delineated extent of the floodplain; therefore, further review pursuant to Section 421 is not required for the energy storage facility.

10. No letters of comment were received in response to the public notice or prior to the completion of this report.

B. Comprehensive Framework Plan (Rural/Natural Resource Plan Element):

STAFF: The goals and policies that relate to the development of land are implemented by the code. The applicant is not required to address, consider, or implement any goal, policy or strategy of the plan except where required by the code.

According to the Rural/Natural Resource Plan map, the subject properties lie entirely within mapped *Water Areas and Wetlands* associated with the 100-year flood plain of Rock Creek. Also, according to Metro's Regionally Significant Fish and Wildlife Habitat Inventory Map, *Class I and Class II Riparian Habitat* lie on the eastern portion of the site. Requests on land with identified Significant Natural Resources are subject to the standards of Section 422, which requires the application of Plan Policy 10, Implementing Strategy E. The applicable plan policy is discussed under Section 422, later in this report.

C. Washington County Community Development Code:

1. Article II, Procedure:

Section 202-2 Type II

202-2.1 Type II land use actions are presumed to be appropriate in the District. Type II uses generally involve uses or development for which review criteria are reasonably objective, requiring only limited discretion. Impacts on nearby properties may be associated with these uses which may necessitate imposition of specific conditions of approval to minimize those impacts or ensure compliance with this Code.

STAFF: This application is being processed through the Type II procedure of the Community Development Code. Where appropriate, conditions of approval are imposed to ensure compliance with the standards of the code and other county regulations, and to minimize identified impacts upon surrounding properties. Public notice was mailed to nearby property owners and the applicant has submitted an affidavit stating that a public notice sign was posted on the site. No letters were received in response to the public notice or prior to issuance of this report.

Section 207-5 Conditions of Approval

207-5.1 The Review Authority may impose conditions on any Type II or III development approval. Such conditions shall be designed to protect the public from potential adverse impacts of the proposed use or development or to fulfill an identified need for public services within the impact area of the proposed development. Conditions shall not restrict densities to less than that authorized by the development standards of this code.

STAFF: The applicant must comply with all of the applicable code regulations and departmental conditions, as listed in Attachment B of this report.

2. Article III, Land Use District:

Section 340 EFU District Standards

340-4 Uses Permitted Through a Type II Procedure

The uses listed in Section 340-4.1 and 340-4.2 are permitted subject to the specific standards for the use set forth below and in applicable Special Use Sections of Section 430, as well as the general standards for the District, the Development Standards of Article IV and all other applicable standards of the Code. Approval may be further conditioned by the Review Authority pursuant to Section 207-5. Unless the use is specifically exempted, the Review Authority shall make specific findings with respect to the standards in Section 340-4.3.

340-4.1 Permitted Uses which are exempt from Section 340-4.3:

R. Utility facilities necessary for public service, including wetland waste treatment systems. Utility facilities necessary for public service do not include: 1) Commercial facilities for the purpose of generating power for public use by sale; 2) Transmissions towers over two hundred (200) feet in height; 3) New Telecommunication Facilities listed under K. and L. above and under Section 344-5.2 L. below; 4) utility facilities exempt pursuant to Section 201-2, and 5) Utility facilities listed under S. below. A facility is necessary if it must be situated in an agricultural district in order for the service to be provided. For required standards, see Sections 430-105.3 through 430-105.7. Application findings must demonstrate compliance with ORS 215.275 (Utility facilities necessary for public service).

STAFF: Section 340-4.1 R. permits the battery energy facility through a Type II procedure. The applicant states the facility will provide a service to the larger regional electric grid by receiving energy from the Sherwood substation, storing energy on site, and later discharging the energy back to the substation when needed. Section 430-105 is addressed later in this report.

This proposal is also subject to the criteria of ORS 215.275, which require that the applicant must show that it is necessary to situate the facility in the EFU District in order for the service to be provided. The criteria of ORS 215.275 are outlined as "the necessary criteria," addressed below.

The Necessary Criteria

1. This application is subject to review pursuant to relevant case law. In *McCaw Communication, Inc. v. Marion County,* 96 Or App 552 (1989), the court found that the siting of a "utility facility" was dependent on the term "necessary." The court also found that local ordinances defining non-farm uses which are permitted in exclusive farm use zones must be read together with state policy of protecting farm land (ORS 215.243). The Court of Appeals stated, "the phrase means a facility that is necessary to situate the facility in the agricultural zone in order for the service to be provided"(staff emphasis).

   With "utility facilities," the court held that there is a relationship between "necessary" and the "proposed location of the use on land zoned for agriculture." The court concluded that in order to site a "utility facility" in an exclusive farm use zone (in this case EFU) "the applicant

must establish and the County must find that it is necessary to situate the facility in the agricultural zone in order for the service to be provided."

2. The decision in *Clackamas County Service District No. 1 v. Clackamas County,* LUBA No. 98-047, further defines the extent of information an applicant must submit for utility facilities in exclusive farm use zones. In that decision, the board found that an applicant must demonstrate why it is necessary to site the facility in an exclusive farm use district as opposed to other districts and found that it is not sufficient to demonstrate only that such a site is more feasible. Accordingly, an applicant must describe those conditions or factors which would prevent siting a utility facility on a non-resource district property.

3. In an effort to provide guidance regarding the interpretation of the "necessary" criteria, the State Legislature adopted House Bill 2865 in 1999. HB 2865 amended ORS 215.213(1)(d) and 215.283(1)(d) to provide a definition in state law of the term "necessary." This application is subject to the amended requirements of OAR 660-033-130 (16) and ORS 215.275. Staff's findings regarding the necessary criteria for this request are listed below.

4. The proposed utility facility may be sited in an exclusive farm use zone if one or more of the criteria found in ORS 215.275 discussed below, are met.

(1) A utility facility established under ORS 215.213 (Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993) (1)(c)(A) or 215.283 (Uses permitted in exclusive farm use zones in nonmarginal lands counties) (1)(c)(A) is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service.

(2) To demonstrate that a utility facility is necessary, an applicant for approval under ORS 215.213 (Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993) (1)(c)(A) or 215.283 (Uses permitted in exclusive farm use zones in nonmarginal lands counties) (1)(c)(A) must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:

(a) Technical and engineering feasibility;

(b) The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;

(c) Lack of available urban and non-resource lands;

(d) Availability of existing rights of way;

(e) Public health and safety; and

(f) Other requirements of state and federal agencies.

According to the applicant, the project must be situated within the EFU District for the following reasons:

Technical and engineering feasibility: According to the applicant, the buildable area required is greater than 10 acres for effective deployment of the BESS technology. Further, a site with an existing public access and relatively flat ground is required to accommodate fire code standards, BESS associated infrastructure, electrical equipment clearances, and other safety

requirements. As discussed in the narrative, the applicant reviewed 40 sites (Applicant's Exhibit 7: Alternatives Analysis), of which most were either not available or deemed technically and financially infeasible due to limited acreage, topography, presence of floodplain, and constructability.

The proposed facility is locationally dependent: The applicant states that the BESS facility must interconnect at the PGE Sherwood substation to satisfy the purpose of the project, and hence geographical proximity to the substation is required. For a battery energy storage facility to function efficiently, to reduce transmission and distribution losses, and to result in greater electricity retention, it must be within an approximately one-mile radius of the substation. This radius helps reduce the overall project footprint, developmental impacts and associated infrastructure costs, and allows more flexibility in considering potential sites for the facility.

Staff agrees the above findings support the conclusion that the proposed battery energy storage facility is locationally dependent from a reasonably direct route and unique geographic need perspective.

Another important factor is the size of the parcel. In order to review potential siting locations, the applicant explored parcels approximately 10 acres or larger given the size of the battery containers, need for access roads for internal circulation, and placement of transformers and other infrastructure.

Thus the size of the parcel and intervening distance to the substation were determining factors for the applicant to site the battery energy storage facility.

Lack of available urban and non-resource lands: The applicant provided an illustration (Figures 1 to 4 of Appendix A in Attachment 7 of the application) showing the parcels evaluated as a potential siting location for the battery energy storage facility within one mile of the subject site. Approximately half the properties lie within farm/forest resource lands. Urban and non-resource lands within the study area were evaluated individually and the results were presented on pages 4 to 9 of the Applicant's Attachment 7.

According to the application materials, analysis of surrounding properties identified 40 parcels that were 10 acres or larger within a 1-mile radius of the substation. Land use districts for these parcels included AF-20, EFU, and FD-20 within Washington County, and parcels within the City of Sherwood that consisted of residential, industrial, commercial, and institutional districts. A total of 11 sites were identified within urban/non-resource lands including the City of Sherwood limits and inside the County's UGB, and Urban Reserve. However, developing these parcels was infeasible due to (i) manufacturing operations established on-site that reduced the usable space to less than 10 acres, (ii) location within designated 100-year flood plain, (iii) unavailable space due to other permitted uses, (iv) presence of existing transmission lines that reduced usable space to less than 10 acres, and (v) owners that were unwilling to sell or lease their properties for the facility.

Given that no viable land was identified within the non-resource lands, properties designated AF-20 and EFU within the Urban Growth Boundary were evaluated. A total of eight sites met the acreage (10 acres or greater) and geographic separation (less than 1 mile) requirements. Some parcels that were already encumbered with transmission lines and not suitable for siting the BESS were considered as potential options for the gen-tie route.

Of all the resources zoned properties, the subject parcels were located within an urban reserve, together had adequate acreage to support the BESS facility while avoiding the on-site flood plain, supported residential uses, and were planted with a diseased hazelnut orchard that is unproductive and not actively farmed. The other EFU zoned properties were either entirely within the flood plain or lay outside the urban reserve/urban growth boundary, and

were actively engaged in farm operations; they were hence considered as potential sites for siting of utility poles for transmission lines only to minimize impacts to the resources.

The above discussion supports the conclusion that it is necessary for the proposed facility to be located in the farm zone.

Availability of Existing Right-of-Way: According to the applicant, this factor was a criterion in the evaluation of alternatives for siting the facility relative to the availability of existing transmission infrastructure. A viable site requires electrical transmission infrastructure with a load capacity of at least 400 MW. The application states that two routes were considered in placement of the gen-tie route between the energy storage and PGE substation. One option was an existing utility right-of-way owned by ODOT that runs immediately to the west of the proposed subject site, along SW Pacific Highway (Option 1). The alternate route is a new 0.2-mile route to the east of the site via above-ground utility poles on adjoining properties (Option 2). This route will allow the energy storage site to connect seamlessly with the Sherwood PGE substation using the shortest connection possible outside of Option 1. The connections will be overhead via poles on Tax Lots 2S1 20 D 700, 2S1 29A 801 and 1651. Since the proposed location of the poles is within the 100-year flood plain of Rock Creek, the applicant has submitted an application (S2500076) requesting review for development within the floodplain, pursuant to Section 421-4.5; placement of the utility poles on the above properties may be allowed only upon approval of this application, as conditioned in Attachment B. A utility easement is required for placement of the poles, also a condition of approval for this decision.

Public health and safety: The applicant states this was not a primary factor in siting of the proposed facility, though they note there are no public receptors in the vicinity of the facility (such as schools, daycares, hospitals, churches, and public parks). Staff adds that the proposed location minimizes any disruptions to most existing uses in the area during construction, operation and decommissioning of the proposed facility. The structures associated with the facility will be located outside the floodplain, except the utility poles that will comply with applicable standards for development within a flood plain if approved. Properties to the north, east and south are a combination of residential and agricultural uses; The subject site supports two homes and a diseased hazelnut orchard that is no longer in production; these features will be replaced by the BESS facility. Health and safety issues pertinent to construction are required to follow County and any other applicable jurisdiction's codes and ordinances for noise, light, and vibration. These elements are also addressed in response to environmental performance standards in Section 423. An approved access permit is required; dust and erosion will be controlled based on an approved erosion and sediment control plan and according to the program's 1200-C permit.

(3) Costs associated with any of the factors listed in subsection (16)(a) of this rule may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations that are not substantially similar.

Pursuant to this requirement, factors beyond cost were used in examining the alternatives. Specific factors considered in the analysis included impacts to existing uses, availability of land, size of the parcel, proximity to the substation, impacts to resource lands, natural resource impacts, system reliability, efficiency of integration with the substation, schedule, and overall cost.

Staff concurs with the applicant's conclusions, that cost was not the only factor for siting the facility.

(4) The owner of a utility facility approved under ORS 215.213 (1)(d) or 215.283 (1)(d) shall be responsible for restoring, as nearly as possible, to its former condition any

agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this section shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

The EFU land proposed for development lies within an urban reserve and is not actively farmed. There is an unproductive and diseased hazelnut orchard on-site that will be taken out of farm use to allow siting of the facility. Adjoining properties to the north, east, and south support small farm and residential uses and lie within the farm resource EFU/AF-20 Districts. Once the subject site is no longer operational as a utility facility, the applicant proposes to decommission and deconstruct the facility and to restore the site to its former or better conditions. Staff notes the proposed development does not preclude the ability of the property to be engaged in future agricultural uses and believes this standard is met with the inclusion of the site reclamation proposal as a condition of approval in Attachment B. Impacts to adjoining farmed parcels is not anticipated during construction or operation of the facility as discussed below.

(5) The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting under ORS 215.213 (1)(d) or 215.283 (1)(d) to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.

This standard is similar to the standard imposed by ORS 215.296 and is also similar to the standard in CDC Section 340-4.3, which implement that statute. The applicant states impacts to adjacent farmland or agricultural uses in the area are not anticipated. Specific practices will be implemented during construction and operation to minimize potential impacts on soil, crops, harvesting and other related activities. These include prompt removal of construction and operational debris, coordinating with neighboring farms on construction schedule(s) and major maintenance activities during the life of the project, to avoid disruption to agricultural operations or to maintain at existing condition to the extent practical traffic, weed control and containment, implementing appropriate dust and erosion/sediment control measures both during construction and operation of the project, and limiting the amount of hazardous material stored on site, including diesel fuel, gasoline, and similar fluids. Appropriate spill prevention, containment, and cleanup plan and kits will be maintained on site during construction and operation of the facility. Further, fencing and landscaped vegetation will be installed along the perimeter of the project site to ensure adequate separation and screening of the facility from the surrounding farm uses. Traffic generated during operation of the facility is expected to be minimal, potentially limited to biweekly and as-needed maintenance trips. Thus, the applicant states the proposed use will not result in a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding lands. The proposed use does not preclude the ability of the property to be farmed in the future when the BESS is decommissioned. No letters of comment were received in response to the public notice for this development, which staff believes reflects a lack of significant opposition to the project. Approval of this request is subject to the conditions of approval listed in Attachment B of this report, which are clear and objective.

(6) The provisions of subsections (2) to (5) of this section do not apply to interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission. [1999 c.816 §3]

STAFF: This is not a request for an interstate natural gas pipeline and/or associated facilities.

Staff concludes that the applicant has demonstrated that the facility is locationally dependent, is necessary to provide public service and that it must be located within the EFU district "in order to provide service". Furthermore, staff concludes that since the applicant has demonstrated compliance with the requirements of ORS 215.275, the applicant has satisfied the requirements of both the *McCaw* and *Clackamas County* cases (described above), and compliance with the necessary criteria required by Community Development Code Section 340-4.1 R.

340-6 UGB Proximity Standards

STAFF: No enclosed structure with a design capacity greater than 100 people, or a group of enclosed structures with a total design capacity of greater than 100 people is proposed.

340-9 Dimensional Requirements

STAFF: All proposed structures will meet the setback requirements of the EFU District. Final compliance shall be confirmed through the building permit process. No dwellings or residential accessory structures are proposed; hence height requirements do not apply. Based on submitted information, no structure will exceed 35 feet in height. Staff notes that a lot consolidation (Casefile L2400298-PLA) was approved between the subject properties (Tax Lots 2S1 20D 1100 and 1200) to allow siting of the BESS facility across these two properties. A condition of approval requires the property line adjustment to be recorded and filed prior to submittal of any building or grading permits for the battery energy storage facility.

340-10 Access

STAFF: Access is proposed via frontage of the subject site on SW Pacific Highway along the west property line. This standard is met.

Section 379 Mineral and Aggregate Overlay District

379-10 Uses Permitted Through a Type II Procedure in District B

The following uses are permitted subject to the applicable standards as set forth in Article IV.

379-10.1 Noise sensitive uses allowed through Type I and Type II procedures in the primary land use district subject to the applicable standards in Section 379-14.

379-10.2 Uses otherwise permitted through a Type II procedure in the primary land use district.

379-10.3 The affected quarry operator and quarry owner shall be notified of Type II actions pursuant to Section 204-4.

STAFF: The subject parcel partially lies within the County's mapped District B overlay of the Mineral and Aggregate Resource District associated with a District A Overlay off-site to the west. However, there is no active mining within the District A designation and the area is preserved as the Tualatin River National Wildlife Refuge and the Beef Bend Natural Area. The District B designation overlays most of the subject site; it does not include the properties to the east that are proposed to support the transmission lines.

As stated in the standards above, the use is considered a Public Utility that is permitted in the EFU district via a Type II Procedure. It is not a noise sensitive use as defined in Chapter 8.24 of

the noise ordinance, and hence standards of Section 379-14 do not apply. The proposed development does not require further review pursuant to this Section.

3. Article IV, Development Standards:

Section 403 Applicability

403-2 Master Plan - Minimum Requirements for all Development

STAFF: A master plan meeting the requirements of this section was submitted; a copy is in the casefile.

403-4 Additional Standards Outside the UGB

STAFF: Section 403-4 specifies how the development review criteria of Article IV apply to development requests on land outside of the UGB. Section 403-4 has been used to identify the applicable development standards listed in this report.

Section 407 Landscape Design

STAFF: The applicant proposes vegetated hedging around the perimeter of the project area (Applicant's Attachment 6). According to the applicant, the proposed project landscaping has been designed to use appropriately spaced native trees and shrubs along the site perimeter. The stormwater detention basin will be seeded with a mix of native herbaceous species. Existing vegetation outside the fenced area will be retained along SW Pacific Highway. The application includes a list of plants to be used for perimeter landscaping in Table 4-1. Landscaping is required prior to final approval of building permits, as conditioned in Attachment B of this report.

Staff finds the proposed landscaping meets the requirements of this section.

Section 409 Private Streets

STAFF: The project area will support internal roads in excess of 150 feet in length for vehicular circulation on-site. Hence these streets are subject to review per this section. Drainage requirements, and compliance of these internal streets with the Oregon Fire Code will be reviewed by the Fire District (in this case Tualatin Valley Fire and Rescue District) and the County Building Engineer during grading and building permit review process (conditioned in Attachment B).

Section 410 Grading and Drainage

STAFF: As discussed previously in this report, the applicant requests approval for a battery energy storage system which is a utility facility necessary for public service in the EFU District. The applicant has submitted preliminary grading plans to meet the requirements of this section.

Certain grading activities may be exempt from permit requirements. However, any grading whether exempt or not must be for a use permitted in the EFU District. Grading must be preceded by approval of grading, drainage, and erosion control plans through the grading/erosion control permit process. Pursuant to Section 410-1.2, the applicant shall submit necessary plans for review by the county Building Engineer and shall obtain grading/erosion control permits prior to any grading/construction activities (conditioned in Attachment B). Excess soils from the project, if any, must be placed at an approved location subject to grading review and permits.

Regarding water quality outside the UGB, OAR Chapter 340, Division 41 (concerning phosphorus removal), applies to all development outside of Clean Water Services jurisdictional boundaries. Applicable standards are addressed during review of the grading permit.

Section 411 Screening and Buffering

STAFF: This section does not include specific screening/buffering measures for rural development. Typical application of screening/buffering requirements would be to screen a proposed commercial use from view of surrounding residential or farmed properties. In this case, the proposed energy storage facility will be created central to the subject site, well within the boundaries of the property. To the north, east and south are farm zoned properties, most of which support active farming operations. To the west lies the Tualatin River National Wildlife Refuge. To the southwest are commercial and industrial properties within the City of Sherwood. Staff finds that screening the project area from adjoining properties is warranted. The applicant proposes dense vegetated landscaping along the perimeter of the proposed facility, as shown in the submitted landscape plan (Applicant's Attachment 6). The applicant also intends to install a perimeter chain-link fence around the facility. Additional vegetated screening or a walled fence may be installed around the batter storage area for noise attenuation, as determined by a subsequent noise study, conditioned in Attachment B of this report. Staff finds the proposed landscaping will adequately screen and buffer the facility from surrounding uses and properties; and is included as a condition of approval for the development.

Section 413 Parking

STAFF: Operations at the site will require occasional maintenance visits. The applicant proposes four gravel parking stalls to accommodate two to four employees on-site at a time. Two temporary lay-down areas for construction management facilities (office trailers), construction staging and worker parking are proposed to the north and southeast of the facility. These will be of a temporary nature during construction; permanent on-site parking will include at a minimum four stalls that accommodate parking for operational requirements only. There is adequate room on-site to accommodate additional parking if required.

Section 415 Lighting

STAFF: Lighting will be installed to provide operations and maintenance personnel with illumination for both normal and emergency conditions. Permanent lighting will be installed to illuminate the yard and ingress/egress for security, emergency, and maintenance; these will be powered on as needed. The area will not be lit during normal operations and all lighting will be shielded and directed downward to minimize potential of impact to adjacent properties and habitat.

Section 421 Flood Plain and Drainage Hazard Area Development

STAFF: The subject site is mapped to lie within the 100-year flood plain of Rock Creek. The applicant proposes the battery energy storage facility outside of the delineated extent of the 100-year flood plain on site (Tax Lots 2S1 20 D 1100 and 1200).

The transmission poles connecting the battery energy storage facility to the Sherwood PGE substation are proposed within 100-year flood plain on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651. This triggers additional land use review pursuant to Section 421, that permits placement of above-ground utility poles in the flood plain as a Type I use, pursuant to Subsection 421-4.5. Placement of these transmission poles as proposed will be permitted only when land use approval is obtained and the requirements stipulated in that decision are met. To that end, the applicant has submitted a separate development application (S2500076).

Section 422 Significant Natural Resources

422-3.1 The required master plan and site analysis for a site which includes an identified natural resource shall:

A. Identify the location of the natural resource(s), except in areas where a Goal 5 analysis has been completed and a program decision adopted pursuant to OAR 660, Division 23 (effective September 1, 1996):

STAFF: According to the Rural/Natural Resource Plan Map, there are *Water Areas and Wetland* associated with the 100-year flood plain of Rock Creek on the entire subject site that will support the battery storage system, as well as the tax lots that will support the transmission lines connecting the PGE Sherwood substation to the BESS. Rock Creek is mapped flowing off-site, over 700 feet to the east. According to Metro's Regionally Significant Fish and Wildlife Habitat Inventory Map, *Class I and Class II Riparian Habitat* are associated with the on-site flood plain. These are limited to the eastern portion of the subject site supporting the battery storage system, and all the tax lots proposed for placement of the transmission line poles. The applicant has provided suitable findings relevant to Section 422 in the Code Consistency Analysis (Applicant's Attachment 8), a Biological Resources Report (Applicant's Attachment 9), and a Wetland Delineation Report (Applicant's Attachment 10).

The application includes a delineation of the 100-year flood plain that demonstrates the BESS facility will be situated entirely outside the 100-year flood plain. However, the transmission poles to be constructed on Tax Lot 700, 801, and 1651 will be within the flood plain. Therefore, land use review and approval for development within the flood plain is required pursuant to Code Section 421-4.5 and is a condition of approval of this decision. Staff notes that the applicant has submitted a request to that effect (S2500076) that has been deemed incomplete at the time of drafting this report. The portion lying within the Title 13 habitat is partly in agricultural use (hazelnut orchard) and partly supports grass and vegetation appropriate for pasture. According to the applicant's biologist, given the generally disturbed nature of the site, suitable habitat to support listed plant or wildlife species are primarily absent or limited on-site.

Field studies by the applicant identified an unmaintained hazelnut orchard and two wetland areas in the northern portion of the subject site. Rock Creek flows off-site to the east. An actively maintained recreational grass field, a residence, and a storage structure are southwest of the hazelnut orchard.

B. *Describe the treatment or proposed alteration, if any. Any alteration proposed pursuant to Section 422-3.1.B shall be consistent with the program decision for the subject natural resource; and*

STAFF: This application is for operating a battery energy storage system in conjunction with the PGE Sherwood substation south of the subject site. All structures associated with the battery energy storage system and its accessories but for support poles, including driveways, will be located outside the flood plain. The mapped Title 13 resource area corresponds to the mapped extent of the 100-year floodplain on-site and the entire development of the battery energy facility is proposed outside of that feature. There is very minor encroachment on to the 100-year flood plain and Metro Title 13 resource areas on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651 from placement of the utility poles, triggering additional review pursuant to Section 421.

C. *Apply the design elements of the applicable Community Plan; or the applicable implementing strategies of the Rural/Natural Resource Plan Element, Policy 10, Implementing Strategy E which state:*

"Implement the recommendations of the Oregon Department of Fish and Wildlife Habitat Protection Plan for Washington County and to mitigate the

effects of development in the Big Game Range within the EFU, EFC and AF-20 land use designations.

STAFF: Plan Policy 10, Implementing Strategy E, applies to fish and wildlife resources. Implementing Strategy E requires the county to implement the recommendations of the Oregon Department of Fish and Wildlife's (ODFW) "Habitat Protection Plan for Washington County."

The *Water Areas and Wetland* and Metro Title 13 *Class I and II Riparian Habitat* designation applies to the area within and near Rock Creek. The Habitat Protection Plan considers rivers and streams to be within the category of Water Areas and Wetlands. The plan's protection policies for such features are as follows:

1) Residential development along streams should be low density:
2) Require appropriate setbacks
3) Prohibit construction of "vulnerable" structures in the flood plain;
4) Maintain riparian vegetation;
5) Restrict stream alterations; and
6) Road crossings, bridges, etc, should avoid restricting channel capacity and minimize removal of vegetation.

The applicant is requesting approval for a battery energy storage system that will entirely avoid the mapped resources on site except for the poles as mentioned earlier. The placement of these poles will adhere to the standards of Section 421 and minimize impacts to the extent practicable. No residential development or structures are proposed within the floodplain. No alterations are proposed to the Rock Creek stream channel which flows approximately 700 feet off-site. Road crossings, bridges, or similar alterations are not proposed. Staff finds that the proposal is consistent with all the recommendations of the Habitat Protection Plan concerning rivers and streams.

Based on the above analysis, staff finds that the applicant's proposal is in compliance with the requirements of Plan Policy 10, Implementing Strategy E.

422-3.6 For any proposed use in a Significant Natural Resource Area, there shall be a finding that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan, or how the interference can be mitigated. This section shall not apply in areas where a Goal 5 analysis has been completed and a program decision has been adopted that allows a "conflicting use" to occur pursuant to OAR 66023040(5)(c) (effective September 1, 1996).:

STAFF: Based on information included within the application, staff finds there is no expectation of permanent loss of resource acreage, quality, or functions. The proposed project will result in planting of more trees on site than exists currently in the form of perimeter landscaping, thus providing potential for future upland habitat suitable for wildlife. No encroachment is proposed onto significant natural resources. Further, the stormwater basin, when designed with vegetation, will provide additional habitat for wildlife, particularly insects, small mammals and birds as the habitat benefits will be similar to constructed ponds and wetlands. Erosion control measures during construction will further ensure impacts from runoff are minimized during construction. Once decommissioned, all features associated with the facility will be removed and replanted with native vegetation, restored to agricultural uses, or restored to pre-existing condition or better, as conditioned in Attachment B. Staff notes that the two dwellings on site will be demolished: land use review and approval pursuant to Code standards applicable at the time will be required for establishing a new home on the subject site. Staff finds that this standard is met.

Section 423 Environmental Performance Standards

STAFF: The county requires the proposed development to comply with all applicable DEQ and county environmental standards pertaining to noise, odor, drainage, wastewater, and storage. There will be no open storage of material and equipment as part of the proposed use (other than during the construction period). According to the applicant, during operation, the proposed facility will not emit pollutants or odors. The applicant states that noise generated by battery enclosures are generally a low hum of approximately 60 dBA (similar to a normal conversation per a decibel chart submitted by the applicant). The following are typical sources of noise during the operation of the facility: cooling fans, transformers, and vehicular activity to and from the site. The applicant has communicated to staff that the battery technology for the BESS is still under evaluation, and they are hence unable to accurately assess the noise to be generated at the site. While it is not anticipated that the noise generated will result in a substantial increase in ambient noise levels, noise attenuation features such as a walled enclosure around the periphery of the battery storage area may be necessary. The applicant is required to submit a noise study that evaluates noise levels and potential impacts and mitigation measures; and is ultimately responsible for ensuring compliance with the Washington County Code Chapter 8.24: Noise Ordinance. These are included as conditions of approval in Attachment B of this report. While the proposed use will generate some ground vibrations, these are not anticipated to be perceptible beyond the project area. The use will not produce heat and glare beyond minimal amounts that are undetectable on adjacent properties—air cooling fans are proposed to prevent overheating. Permanent lighting will be installed to illuminate the yard and ingress/egress for security, emergency, and maintenance; these will be powered on as needed. The applicant has noted the area will not be lit during normal operations and all lighting will be shielded and directed downward to minimize potential of impact to adjacent properties and habitat. Regarding waste, the applicant states that some waste will be generated due to maintenance activities, which will be collected on-site within enclosed trash receptacles and taken off-site at regular intervals. During operation of the facility, the applicant does not anticipate production, use, storage, transport or disposal of hazardous materials (as defined by Title 40 CFR 355). No toxic or noxious matter are anticipated to be generated. A perimeter chain link fence is proposed for safety and security and will remain in place while the facility is in operation. Screening and buffering requirements are discussed earlier in Section 411 of this report and conditioned in Attachment B of this report. Gravel surfacing will be utilized throughout the project area and any stormwater overflow will be detained within a retention basin in the northern portion of the site. Stormwater and drainage management will be reviewed during the grading/building permit review process. The existing on-site septic system (currently in residential use) may be utilized for the proposed Operations and Maintenance Building to support minimal on-site sanitary and water needs during operation of the project. Water is required for maintenance of landscaping and for fire emergencies and may use the on-site well. The application includes a service provider letter from the District 18 Watermaster indicating adequacy of existing groundwater levels to serve the proposed development.

When constructed in accordance with the conditions of approval, this request complies (or can comply) with the requirements of this section.

Section 426 Erosion Control

STAFF: The Building Engineer has determined a grading permit is required. Erosion control plans may be deferred until a grading permit is obtained. Erosion control and drainage requirements will be reviewed via the grading permit process and must conform to Chapter 14.12 of the Washington County Code, as conditioned in Attachment B.

Section 430-105 Public Utility

Any corporation, including municipal or semi-municipal corporation, service district, company, individual, or association that owns or operates any plant or equipment for the conveyance of telegraph or telephone messages, with or without wires; for the transportation of water, gas, or petroleum products by pipeline; for the production, transmission, delivery or furnishing of heat, light, water, or electricity;

for the transmission and delivery of television pictures and sound by cables; for the transportation of persons or property by street, railroads or other street transportation or common carriers; for the disposal of sewage; or for the disposal of storm water runoff.

430-105.3 *A public utility service facility includes buildings, structures, and equipment within a fenced or otherwise enclosed area for the purpose of switching, regulating, or controlling public utility services.*

430-105.4 *Approval of a public utility shall be based upon a study submitted by the applicant which includes:*

A. *The need for the facility, present or future; and how the facility fits into the utility's Master Plan; and*

B. *The minimum area required for the facility for the present and anticipated expansion.*

C. *What measures will be used to minimize damage to paved roads and natural resources or open space.*

STAFF: The proposed development is a battery energy storage system intended to work in conjunction with a utility provider (PGE substation in Sherwood) helping stabilize and provide electricity in times of need. The facility is not specifically listed as a permitted use in the EFU district or within this section of the Code since the concept of a BESS is fairly new and zoning ordinances have not been updated to specifically address it as a new form of land use. Energy storage systems are evolving to meet increasing demands for renewable energy integration and grid stability. As stated in the findings earlier, the proposed use is substantially similar to a public utility in the nature of use and service provided. A BESS may be categorized as a 'public utility service facility' and includes buildings, structures, and equipment within an enclosed area for storage and regulation of electricity. A BESS serves to balance energy availability and demand by storing surplus energy (charging) during periods of low demand and releasing it (discharging) to generate electricity during times of peak demand, power outages and grid balancing, thus serving to regulate demands within the regional electricity grid. These storage systems also provide benefits such as frequency regulation and voltage support. The proposed subject facility will be owned by a corporation and be used to store and furnish electricity for transmission in times of need to the PGE electric substation in Sherwood. The BESS will connect to the grid through distribution lines linking to the PGE substation.

According to the applicant, the proposed development is in response to PGE's 2023 Clean Energy Plan and Integrated Resource Plan (CPE/IRP), following Oregon's Clean Energy Bill (House Bill 2021) which requires a greenhouse gas emission reduction goal of 80% by 2030 for retail electricity providers. PGE targets this goal by gradual reduction in fossil-fuel-generated electricity and substituting it with non-emitting energy resources such as wind and solar energy. However, fossil fuel electric generators provide much needed dispatchable capacity and reliability to the grid that cannot be replaced by renewable resources such as wind or solar power since these are intermittent sources due to variations in availability. A reliable grid must be resource-adequate, with enough capacity and reserves to maintain balanced energy supply and demand during peak energy needs at any time and under all weather conditions. A BESS enables an electricity system to maintain reliability and allow for cost-effective decarbonization. The application states that the proposed development would contribute towards meeting PGEs capacity need of approximately 753 MW (target of 251 MW annually for 2025 to 2027) by installation of up to a 400MW capacity storage system. The BESS will provide relief to the PGE Sherwood substation which is nearing its electricity load capacity and will provide greater reliability to customers in the region.

This proposal is subject to the precedents set by the *McCaw* and *Clackamas County* cases, OAR 660-33-130 (16), and ORS 215.275 (addressed earlier under Section 340). Those cases establish

that the applicant for a public utility must show that it is necessary to situate the facility in the EFU District in order for the service to be provided.

According to the applicant, the proposed location for the battery energy storage facility was selected based on an alternatives analysis, included within the narrative of the application materials and discussed previously in this report. Extensive siting research at over 40 locations was conducted within a 1-mile radius of the substation. As described in the application materials, placement of the facility is locationally dependent and must be situated in the proximity of the Sherwood PGE substation. As a general rule, approximately one acre of land can site a BESS with an approximate capacity of 40 MW, thus requiring at least 10 acres of land for the proposed 400 MW BESS project. Further, a viable site requires available public access, relatively flat ground, and be large enough to accommodate equipment, internal roads and infrastructure to meet fire code requirements, such as fire access specifications, minimum electrical equipment clearance and separations, and other safety and security considerations.

Operational activities associated with the proposed development are limited, hence traffic to and from the site is expected to be nominal. Typical operations and maintenance activities include liaison and remote monitoring, administration and reporting, semiannual and annual services, weekly/periodic maintenance visits such as equipment inspections, monitoring and testing, security, landscaping, remote operation of inverters and site security. Batteries and other components will be replaced or renewed periodically to ensure optimal operation.

The applicant's response to Section 422 addresses how the project will minimize impacts to natural resources. The siting of the BESS will utilize approximately 15 acres over two adjoining parcels (consolidation approved via Casefile L2400298-PLA) and avoid any on-site natural resources and flood plains. Staff notes that placement of transmission poles is proposed on Tax Lots 2S1 20D 700, 2S1 29A 801 and 1651 within mapped 100-year flood plain. Ground disturbance will be minimal, and land use approval for development within the flood plain is required as conditioned in Attachment B of this report. The applicant is required to implement a construction management plan (as part of the grading/erosion control permit) that will define measures to minimize damage to paved roads and to be finalized with the contractor and with the county. The plan will address construction activities and will specify that paved roads will be restored to their pre-project condition or better, consistent with county requirements.

Staff finds that the proposed battery energy storage facility and its construction activities will utilize the minimum area required for the facility. Based on the above findings and the information in the casefile, staff concludes that the request complies with the requirements of Sections 430-105.4 A and B.

Conditions in Attachment B will ensure the applicant completes the necessary measures.

430-105.5 Site size and yard shall be based upon a site plan submitted by the applicant. The site plan shall consider especially, the compatibility of the facility with existing surrounding uses and uses allowed by the plan designation.

STAFF: The applicant has submitted a site plan meeting the above requirement. Given the passive nature of the proposed use, the battery energy storage facility is expected to be compatible with existing surrounding uses. Farm operations, residential uses, and industrial/commercial facilities surround the project site. The facility will generate little to no traffic, nor will it generate excessive noise (see findings under Section 423 earlier in this report). The facility proposes no such human activity to disturb residents or other uses in the area. The applicant proposes vegetated landscaping around the project site that will screen the proposed facility from surrounding uses and provide some degree of noise attenuation. In terms of compatibility with uses allowed in the EFU district, the project site is expected to be returned to pre-existing or better conditions and restored to

agricultural or other permitted uses upon decommissioning of the energy storage system; the site is currently a hazelnut orchard that is unproductive due to diseased and blighted plants. Compatibility of the facility with surrounding uses has also been addressed earlier in this report. Following this facility use and restoration, farming uses would still be possible on the subject site. No letters of comment were received during the public notice period indicating at a minimum that neighbors in the area do not have any significant concerns related to the proposed development. This standard is met.

430-105.6 Exemptions from the Requirements of Section 430-105:

Exempted from these regulations are:.....

.....

B. Above-ground electric transmission, distribution, communication, and signal lines on a single pole system where a single pole is defined as above-ground electrical lines and their supporting concrete, wood or metal poles but does not include self-supporting lattice type structures .

STAFF: The proposed BESS facility does not meet the criteria for an exemption; however, the proposed poles might be exempt from the standards of this section if they met the criteria listed above.

4. Article V, Public Facilities and Services

Section 501 Public Facility and Service Requirements

STAFF: In the rural area (outside the UGB), the county applies the Public Facilities and Services Standards in a limited way. The impacts on schools, fire and police protection, and public roads are considered.

It should also be noted that outside the UGB, the code does not require the applicant to assure that adequate levels of public services exist. The county is required only to consider the impact of the proposed development on public facility and service levels. While the land use review process does consider the impact of development on public services, it does not assure their adequacy.

In this case, schools are not impacted by the proposed facility. The applicant has provided service provider letters from the Washington County Sheriff's Office and the Tualatin Valley Fire and Rescue district confirming adequate levels of service for the subject site and proposed use.

Access is proposed on to SW Pacific Highway (an ODOT highway) to the west. As conditioned in Attachment B, prior to a temporary construction access, or permanent access to the site, the applicant is required to obtain a right-of-way permit (or an exemption) from ODOT, as applicable. Adequacy of the access approach to serve the proposed use and availability of adequate sight distance will be verified by ODOT.

The applicable provisions of Section 501-9 are met.

III. SUMMARY

The applicant has requested approval for Special Use and Development Review for the construction of a utility facility necessary for public service (battery energy storage system and transmission lines) within the EFU District. Based on the information in the casefile and the findings of this report, staff concludes that the proposal complies with the applicable review standards of the code or can be conditioned to comply. Therefore, this request is **APPROVED** subject to the conditions of approval listed in Attachment B of this report.

Appendix K
ATTACHMENT "D"
TYPE II

WASHINGTON COUNTY
Dept. of Land Use & Transportation
155 N. 1st Avenue, #350-13
Hillsboro, OR 97124
Ph. (503) 846-8761 Fax (503) 846-2908
www.co.washington.or.us

CASEFILE # L2400314-SU/D

APPEAL INFORMATION

Attached is a copy of the Land Use and Transportation Department's Review Authority decision on this request for a Development Action.

Any person who is adversely affected or aggrieved, or who is entitled to written notice pursuant to ORS 215.416(11) may appeal the decision by filing a written appeal.

Failure to file a petition for review with the Department of Land Use and Transportation by 4:00 p.m. on the due date, with the fee specified in the Notice of Decision, shall be a jurisdictional defect.

The decision, including conditions of approval, may be appealed and a public hearing held by filing a signed petition for review (appeal) within twelve (12) calendar days of date written notice is provided (date mailed).

APPEAL PERIOD: 05/16/2025 (Date Mailed) to 4:00 p.m. on 05/28/2025 (Appeal Due Date)

This decision will be final if an appeal is not filed by the due date.

The complete file is available at the County Department of Land Use and Transportation for review.

A petition for review (appeal) must contain the following: L2400314-SU/D

1. The name and signature of each petitioner filing the petition for review (appeal). If a group consisting of more than one person is filing a single petition for review, one individual shall be designated as the group's representative for all contact with the Department. All Department communications regarding the petition, including correspondence, shall be with this representative;
2. A statement of the interest of each petitioner;
3. The date the Notice of Decision was sent as specified in the notice (date mailed);
4. The nature of the decision and the specific ground for appeal. For applications with multiple requests, specify the particular request(s) and/or specific conditions of approval being appealed;
5. A statement listing the number of pages of the petition and that all pages are present;
6. A statement setting forth the appeal fee as specified in the Notice of Decision; and
7. The appropriate appeal fee of **$250.00**

For further appeal information, contact the Appeal Secretary at the Washington County Department of Land Use and Transportation. Phone 503-846-3849 or louisa_bruce@washingtoncountyor.gov .

PGE Utility Facility Replacement and Interconnection

City of Sherwood - Site Plan and Conditional Use Permit Application

PREPARED FOR
TUAL bn, LLC

DATE
August 2026, Revised October 2026

REFERENCE
0834897

DOCUMENT DETAILS

DOCUMENT TITLE	PGE Utility Facility Replacement and Interconnection
DOCUMENT SUBTITLE	City of Sherwood - Site Plan and Conditional Use Permit Application
PROJECT NUMBER	0834897
DATE	August 2026, Revised October 2026
AUTHOR	ERM
CLIENT NAME	TUAL bn, LLC

LANDOWNER

Portland General Electric Company (PGE)

APPLICANT

Environmental Resources Management, Inc. (ERM)
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1. BACKGROUND INFORMATION

On behalf of TUAL bn LLC, Environmental Resources Management, Inc. (ERM) has prepared this Site Plan and Conditional Use Permit (CUP) Application to the City of Sherwood for the Proposed Portland General Electric Company (PGE) Utility Facility Replacement and Interconnection (proposed work). The Application Form is provided as Appendix A. The proposed work includes upgrading existing PGE poles to accommodate approximately 1,200 feet of 230 kilovolt (kV) generation-tie (gen-tie) line along with PGE's existing 115 kV line on up to five utility poles. The gen-tie line will interconnect the Nottingham Battery Energy Storage System (BESS) to PGE's regional transmission grid at the PGE Sherwood Substation, located within the City of Sherwood (City).

1.1 APPLICANT

ERM on behalf of TUAL bn, LLC
1050 SW 6th Ave Ste 1650
Portland, OR 97204

1.2 SUBJECT PROPERTY

20655 SW Langer Farms Pkwy
Parcels - 2S129B001800, 2S129A0021650 and 2S129A001651. Tax Maps are included in Appendix B.

1.3 PROPERTY OWNER

Portland General Electric Company
121 SW Salmon St.
Portland, OR 97204

1.4 ZONING

The subject property is zoned Light Industrial (LI) under the Sherwood Municipal Code. Abutting land uses within the City of Sherwood include a state highway (Highway 99W), a Home Depot, and other LI zoned properties.

2. DIVISION II – LAND USE AND DEVELOPMENT; SITE PLAN REVIEW

This section and other related exhibits and documents address the Site Plan Review requirements of SZCDC 16.90.020 and the applicable standards of the LI zone and related chapters. The Site Plan and related exhibits are provided in Appendix B satisfying all applicable information requested in the City's checklist and SZDC 16.90.020. The proposed work involves the replacement of existing PGE transmission poles and associated electrical lines within an established utility corridor and substation site. The following findings demonstrate that the

proposal complies with the applicable Site Plan Review criteria, except for structure height, which is addressed through the concurrent CUP request.

2.1 PERMISSIBLE USE – SZCDC 16.31.020(A)

Under SZCDC 16.31.020(A), the proposed replacement of existing transmission poles and associated line work is considered a "public and private utility structure," which is permitted outright in the LI zone.

2.2 INDUSTRIAL LAND USE DISTRICTS. LI DEVELOPMENT STANDARDS – SZCDC 16.31.030

The proposed work has been designed to comply with the applicable dimensional and development standards of the LI zone, including lot coverage, setbacks, and site design requirements, with a structure height exception. As discussed under SZCDC 16.62, the proposed work triggers a conditional use review for the replacement of existing utility poles that will exceed 50 feet.

All other applicable LI development standards are met or are not applicable to the proposed work.

2.3 CLEAR VISION AND FENCE STANDARDS – SZCDC 16.58

The proposed work does not involve the construction of any buildings, structures, fences, walls, or plantings that would create sight-obscuring obstructions within required clear vision areas. No new driveway, street intersection, or alley is being created as part of this application.

The proposed work will not impact the existing (or any future expanded) access road serving the adjacent parcel to the west of the substation (parcel number 2S129B001900). The work will not obstruct, narrow, or otherwise interfere with safe vehicular, pedestrian, or emergency access along that road or to parcel number 2S129B001900, which is currently undeveloped. Clear vision triangles at any affected intersections or driveways will remain free of obstructions exceeding the height limits established in Section 16.58.010.

The proposed work complies with all other applicable performance standards of Chapter 16.58, including clear vision area dimensional requirements and fence, wall, and hedge standards. No variances or adjustments to these standards are requested.

2.4 CHIMNEYS, SPIRES, ANTENNAS, AND SIMILAR STRUCTURES – SZCDC 16.62

The proposed gen-tie line poles are considered similar structures under Section 16.62.010 and are generally treated as an excepted use that may exceed the standard height limitations of the underlying zone.

On 14 March 2025, the City (Sean Conrad, Planning Manager) indicated via email that no land use permits would be required to install utility poles within PGE's existing utility corridor. Since that time, the City has adopted a new interpretation of its Code, and City staff have indicated that Section 16.62.020 requires approval of the utility pole structures through the CUP process. It is

our interpretation that underlying zoning allow gen-tie poles as utility facilities, which ordinarily include poles greater than 50 feet in height, and therefore is not subject to the CUP requirement[1]. To expedite review, Applicant has structured the application per City Staff's recommendation, and this application is submitted in accordance with the requirements of Section 16.62.020. The proposed work complies with all other applicable provisions of Chapter 16.62.

2.5 DIVISION III – ADMINISTRATIVE PROCEDURES APPLICATION FORM

The completed and signed Application Form is provided as Appendix A. Applicant has prepared and submitted this application in accordance with the Application Requirements (16.70.030), Application Submittal (16.70.040), Availability of Record for Review (16.70.050), and Application Resubmission (16.70.060) process and standards.

2.5.1 TITLE REPORT AND DEED

A Title Report for parcels 2S129B001800, 2S129A0021650 and 2S129A001651 is provided as Appendix C. The property deeds are also provided in Appendix C.

2.6 GENERAL PROVISIONS – SZDC 16.70

2.6.1 PRE-APPLICATION CONFERENCE

A pre-application conference for the proposed work (PAC 2026-006 / #785-26-000074-PLNG) was held on 23 July 2026.

City and agency staff in attendance, or who provided comment following the meeting, included representatives from engineering (Craig Christensen, Jason Waters, and Katie Corgan), Building (Jared Bradbury), Public Works (Richard Sattler), Fire (Jason Arn), Planning (Tony Mills), Oregon Department of Transportation Region 1, PGE (Ken Spencer), Community Development Director Eric Rutledge, Planning Manager Sean Conrad, and City Planner Hugo Hamblin-Agosto.

During the meeting, staff reviewed the proposed work, provided comments, and answered questions. Following the meeting, the City provided the Applicant with pre-application conference notes and checklists. The items identified in the City’s pre-application materials are addressed as part of this application.

2.6.2 NEIGHBORHOOD MEETING

The Applicant held a neighborhood meeting on 6 August 2026. The Applicant sent notice to property owners within 1,000 feet of the proposed work. An affidavit documenting this mailing, the meeting sign-in sheet, and the meeting notes are provided as Appendix D.

[1] Specifically, while SMC 16.31.030(B) sets a 50-foot high limit in the LI district, there are carveouts in Sections 16.62.010 and 16.62.020 that exempt certain permitted uses and structures (including public and private utility structures) from height restrictions and the CUP requirement.

2.7 PROCEDURES FOR PROCESSING DEVELOPMENT PERMITS – SZDC 16.72

2.7.1 GENERALLY – SZDC 16.72.010

Applicant understands that this Site Plan (Type II) and Conditional Use Permit (Type III) application will be classified, processed and combined as a Type III review according review procedures set forth in Section 16.72.010, including the appropriate hearing and appeal authority.

2.7.2 PUBLIC NOTICE AND HEARING / CONTENT OF NOTICE – SZDC 16.72.020 - 16.70.030

The Applicant acknowledges the public notice and hearing requirements of Sections 16.72.020 and 16.72.030. Required notices will be provided by the City in accordance with these sections, and the Applicant will cooperate fully with any additional notice or posting obligations.

2.7.3 PLANNING STAFF REPORT – SZDC 16.72.040

The Applicant understands that a planning staff report will be prepared and made available prior to the public hearing, consistent with Section 16.72.040.

2.7.4 CONDUCT OF PUBLIC HEARINGS – SZDC 16.72.050

The Applicant is prepared to participate in the public hearing process as outlined in Section 16.72.050 and will present testimony and evidence in support of the application.

2.7.5 NOTICE OF DECISION, REGISTRY OF DECISIONS, AND FINAL ACTION – SZDC 16.72.060 - 16.72.080

The Applicant understands that a written Notice of Decision will be issued following the hearing, that the decision will be entered into the City's registry, and that final action on the permit will be taken in accordance with Sections 16.72.060 through 16.72.080. Any appeal rights will be exercised, if necessary, within the timelines established by the Code.

The application materials and supporting documentation necessary to facilitate review under Chapter 16.72 are included in this submittal and its appendices.

3. DIVISION IV - PLANNING PROCEDURES

3.1 CONDITIONAL USES SZDC 16.82

Conditional use review is required for a portion of the work. Applicant evaluates the potential impacts associated with the increase in pole height from 60 feet up to 140 feet on five utility monopoles under the applicable Sherwood Municipal Code conditional use criteria below.

3.1.1 SZCDC 16.82.020(C) – CONDITIONAL USE PERMIT CRITERIA

No conditional use shall be granted unless each of the following is found:

1. All public facilities and services to the proposed use, including but not limited to sanitary sewers, water, transportation facilities, and services, storm drains, electrical distribution, park and open space and public safety are adequate; or that the construction of improvements needed to provide adequate services and facilities is guaranteed by binding agreement between the applicant and the City.

***Response**: No new public services are required for the approximately 80 feet change in height of existing utility poles. This criterion is met.*

2. Proposed use conforms to other standards of the applicable zone and is compatible with abutting land uses in regard to noise generation and public safety.

***Response**: Applicant demonstrates in Section II above how the proposed work, including the approximately 80 feet change in height of existing utility poles, conforms to the LI zone standards. Abutting land uses within the City of Sherwood include a state highway, a Home Depot, and other LI zoned lands. The approximately 80 feet change in height of existing utility poles does not pose a compatibility issue with these uses with regard to noise or public safety. Accordingly, this criterion is met.*

3. The granting of the proposal will provide for a facility or use that meets the overall needs of the community and achievement of the goals and/or policies of the Comprehensive Plan, the adopted City of Sherwood Transportation System Plan and this Code.

***Response**: The approximately 80 feet change in height of existing utility poles improves existing electrical infrastructure that serves PGE's regional grid which serves the community. These upgrades ease transmission bottlenecks, strengthen reliability, and support greater renewable energy delivery to the community. Specifically, the Sherwood 2040 Comprehensive Plan includes a vision to have "coordinated and connected infrastructure" because "quality public facilities, services, and utilities contribute to a high quality of life." The Sherwood 2040 Comprehensive Plan establishes two Infrastructure and Energy goals: Goal 4 is to "ensure reliable, safe, affordable and adequate public facilities to meet Sherwood's existing and future needs." And Goal 5 is to "work with partner agencies to coordinate service delivery including but not limited to stormwater, waste, electric, natural gas, broadband, and waste management". Upgrades to electrical infrastructure directly support the Comprehensive Plan visions and goals by improving electricity reliability and delivery for residents of the City.*

The proposed work is also consistent with the 2014 Transportation System Plan which is designed to maintain acceptable transportation services while the City's population and employment grow. The proposed work will not impede any existing transportation routes, nor will it add to transportation congestion. The proposed work will also not impede access to or future development of the undeveloped parcel immediately adjacent to the PGE substation.

The proposed work replaces a public utility structure in the Light Industrial district. That use is allowed under SZCDC 16.31.020(A). A conditional use permit is required per staff's interpretation

under 16.31.030 and 16.82 because the structures exceed the 50-foot height limit. Applicant maintains that 16.62.010 and 16.62.020 are the height carveout for towers and similar structures, that a permitted public utility structure in the Light Industrial district falls within that purpose, and that the gen-tie is therefore not subject to the 50-foot limit in 16.31.030. Nonetheless, code allows structures over 50 feet in this district through the conditional use process (SZCDC 16.62.020)

The proposed work meets the Light Industrial setbacks and the other development standards, as shown in the dimensional and design responses in the application narrative. No variance is requested or required.

For these reasons, the City may find the approximately 80 feet change in height of existing utility poles meets this criterion.

4. Surrounding property will not be adversely affected by the use, or the adverse effects of the use on the surrounding uses, the neighborhood, or the City as a whole are sufficiently mitigated by the conditions proposed.

Response: *Surrounding property (i.e., within 300 feet of the proposed work) within the City of Sherwood consists of a mix of commercial, industrial, and transportation-related uses. A figure depicting surrounding land use is included in Appendix B. The proposed work upgrades existing electrical transmission infrastructure within an existing utility corridor and does not establish a new land use or expand the existing transmission corridor. Construction activities will be temporary and managed through applicable permit requirements and best management practices to minimize short-term impacts related to noise, traffic, dust, and erosion.*

Upon completion of construction, the upgraded 115-kV and new 230-kV transmission lines will continue to operate as an existing utility facility serving the regional electrical system. The proposed work will not generate substantial new operational impacts, nor will it materially alter the appearance, function, or intensity of the existing utility corridor. Operational effects, including audible corona noise, electric and magnetic fields (EMF), and maintenance activities, are expected to remain consistent with those typically associated with properly designed and maintained 230-kV transmission facilities. Visual simulations of the proposed project are provided as Appendix F and an EMF study is provided as Appendix G.

The poles are slender monopoles in a muted, non-reflective finish. Each structure carries both the existing 115 kV transmission line and the new 230 kV gen-tie. Combining the lines on a shared structure avoids a second set of poles and reduces the number of aboveground structures in the corridor.

In addition to the avoidance and minimization measures, Applicant proposes to install bird diverters as a mitigation measure, increasing wire visibility to birds and reducing collision risk. In addition, Applicant proposes to install additional landscaping to serve as screening. Proposed landscaping will be added along the street frontage and where possible, the proposed landscaping corridor exceeds the 10-foot code standard for a local street. The frontage is Langer Farms Parkway, a collector street. These require a landscaped visual corridor of 10 feet wide. The 10-

foot collector corridor is the standard that applies, and the proposed strip meets it, where not otherwise constrained. As part of this discretionary review, staff has asked that the frontage also follow the Adams Avenue North Concept Plan. Planting beyond the 10-foot collector corridor is voluntary mitigation offered to follow that request.

Accordingly, the proposed work is not expected to adversely affect surrounding properties or the City as a whole. Any temporary construction-related effects will be minimized through compliance with applicable federal, state, and local regulations, permit conditions, and implementation of best management practices.

5. The impacts of the proposed use of the site can be accommodated considering size, shape, location, topography and natural features.

***Response**: The site is currently built out for the PGE Sherwood Substation and related utility infrastructure, including the feeder lines and utility poles. This fact demonstrates the site's suitability for the utility pole replacement and approximately 80 feet change in height of existing utility poles. This criterion is met.*

6. The use as proposed does not pose likely significant adverse impacts to sensitive wildlife species or the natural environment.

***Response**: Based on the results of biological and aquatic resource surveys conducted by ERM in 2024, the site does not contain any sensitive wildlife species or natural resources. The approximately 80 feet change in height of existing utility poles upgrades existing utility infrastructure already operating onsite. The proposed work replaces existing overhead electrical infrastructure within an established transmission corridor that has long functioned as part of the regional electrical system, rather than introducing overhead facilities into a previously undeveloped landscape, and a result it will not create a new linear obstacle for previously unobstructed habitat and will not substantially alter existing bird movement patterns. While the replacement poles will be taller than the existing poles, the conductors will occupy an existing utility corridor where birds are already accustomed to the presence of overhead electrical facilities. On behalf of the Applicant, ERM completed an Avian Collision Risk Assessment, which is provided as Appendix H. This assessment demonstrates that because the proposed work is collocated with existing infrastructure within a highly developed utility corridor, the work will present minimal additional collision risk to birds in the area. Furthermore, the replacement transmission poles will be designed and constructed in accordance with current utility engineering standards that incorporate adequate conductor spacing and insulation clearances to minimize electrocution risk for large birds. Additionally, any potential collision risk associated with the additional height of poles and lines will be significantly reduced by utilizing bird diverters. Accordingly, the approximately 80 feet change in height of existing utility poles meets this criterion.*

7. For wireless communication facilities, no Conditional Use Permit will be granted unless the following additional criteria is found: …

***Response**: Not Applicable; the proposed work is not a wireless communication facility.*

8. The following additional criteria apply to transportation facilities and improvements subject to Conditional Use approval per Chapter 16.66.

***Response**: Not Applicable; the proposed work is not a transportation facility.*

4. DIVISION V – COMMUNITY DESIGN

4.1 SITE PLANNING – SZDC 16.90

No Site Plan approval will be granted unless each of the following is found:

1. The proposed development meets applicable zoning district standards and design standards in Division II, and all provisions of Divisions V, VI, VIII and IX.

***Response**: The proposed work is in the LI zone. Applicant addresses the applicable LI provisions above and the applicable Division V (Community Design), Division VI (Public Infrastructure), and Division VIII (Environmental Resources) standards below. Divisions IX does not apply to this work.*

Division IX – Historic Resources is not applicable because no historic resources are present on or adjacent to the PGE parcels. The parcels do not contain any structures, objects, or features listed on, or eligible for listing on, local, state, or national historic registers, and the project would not affect any known historic resources.

2. The proposed development can be adequately served by services conforming to the Community Development Plan, including but not limited to water, sanitary facilities, storm water, solid waste, parks and open space, public safety, electric power, and communications.

***Response**: The proposed work will not require any increase in public service demands. The proposed work consists of the replacement and/or upgrade of existing equipment within a previously developed and disturbed utility corridor. Construction activities will be limited in scope and duration and will utilize the existing utility corridor, access routes, and service infrastructure. All construction-related debris, demolition materials, and any removed or obsolete equipment will be properly collected, transported, and disposed of or recycled at appropriately licensed facilities in accordance with applicable local, state, and federal regulations. Upon completion of the work, the area will be cleared of construction materials, debris, and temporary equipment, and restored to its pre-construction condition. Because the proposed work does not increase development intensity, occupancy, water demand, wastewater generation, stormwater runoff, solid waste generation, or emergency service demand beyond existing conditions, it can be adequately served by existing public services and facilities consistent with the City's Community Development Plan.*

3. Covenants, agreements, and other specific documents are adequate, in the City's determination, to assure an acceptable method of ownership, management, and maintenance of structures, landscaping, and other onsite features.

***Response**: Applicant has obtained consent from PGE to perform the proposed work on PGE-owned property. Applicant will perform the proposed work and upon completion PGE will own, maintain, and operate the upgraded electrical infrastructure.*

4. The proposed development preserves significant natural features to the maximum extent feasible, including but not limited to natural drainage ways, wetlands, trees, vegetation (including but not limited to environmentally sensitive lands), scenic views, and topographical features, and conforms to the applicable provisions of Division VIII of this Code and Chapter 5 of the Community Development Code.

***Response**: The proposed work is on land zoned LI and already developed for electric utility infrastructure. The proposed work involves replacing existing utility infrastructure in the same location, resulting in minimal ground disturbance, and will not require expansion into undisturbed habitat. There are no significant natural features on the PGE parcels. ERM completed biological surveys and wetland and waters delineation field investigations to evaluate potential impacts to biological and aquatic resources. The proposed work area is dominated by previously disturbed existing utility facilities and maintained landscapes. No federally or state-listed fish, reptiles, insects, or vascular plants were observed during field surveys. The Biological Resources Report concluded that no regulatory protections relating to state- or federally listed species are applicable to the project area. The Oregon Department of State Lands (DSL) concurred with ERM's determination of no jurisdictional wetlands or waters within the proposed work area. Clean Water Service (CWS) also determined that the proposed work would not significantly impact the existing or potentially sensitive area(s) found near the site. The CWS Sensitive Area Prescreening Site Assessment and Service Provider Letter are provided as Appendix E.*

Construction-related effects will be temporary and localized. Appropriate erosion and sediment control measures, spill prevention practices, and other standard construction best management practices (BMPs) will be implemented to protect adjacent natural resources and water quality. In addition, construction activities will comply with applicable federal, state, and local environmental regulations.

Because the proposed work replaces existing utility infrastructure within an established transmission corridor and existing substation, avoids wetlands and aquatic resources, occurs in an area characterized by existing development and disturbed habitat, and is supported by completed biological and wetland investigations demonstrating limited biological constraints, the proposed work is not expected to pose likely significant adverse impacts to sensitive wildlife species or the natural environment. Accordingly, the proposed work satisfies the approval criterion of SZCDC 16.82.020(C).

Applicant addresses environmental standards in the applicable provisions of Division VIII below – Section 3.4.

5. For developments that are likely to generate more than 400 average daily trips, or at the discretion of the City Engineer, the applicant must provide adequate information, such as a traffic impact analysis or traffic counts, to demonstrate the level of impact to the surrounding transportation system. The developer is required to mitigate for impacts attributable to the project, pursuant to traffic impact analysis requirements in Section 16.106.080 and rough proportionality requirements in Section 16.106.090. The determination of impact or effect and

the scope of the impact study must be coordinated with the provider of the affected transportation facility.

Response: *The proposed work will not generate more than 400 average daily trips. Construction is expected to require approximately 25–30 workers over a period of approximately three months. Once operational, the facilities will be remotely monitored and only occasionally visited for inspection and maintenance. Therefore, no Traffic Impact Analysis is required.*

6. Electric Vehicle Conduits…

Response*: Not applicable. The proposed work does not include multi-family residential, mixed-use, or non-residential buildings with vehicle parking areas. It consists solely of the replacement of existing transmission poles and associated electrical lines within an established utility corridor.*

7. The proposed commercial, Multi-Family dwelling, institutional or mixed-use development is oriented to the pedestrian and bicycle, and to existing and planned transit facilities…

Response: *Not applicable. The proposed work is not a commercial, multi-family, institutional, or mixed-use development.*

7. Industrial developments provide employment opportunities for citizens of Sherwood and the region as a whole. The proposed industrial development is designed to enhance areas visible from arterial and collector streets by reducing the "bulk" appearance of large buildings…

Response*: Not applicable. The proposed development is not a building, as defined in the SZCDC.*

8. Driveways that are more than twenty-four (24) feet in width shall align with existing streets or planned streets as shown in the Local Street Connectivity Map in the adopted Transportation System Plan (Figure 17), except where prevented by topography, rail lines, freeways, pre-existing development, or leases, easements, or covenants.

Response*: Not applicable. The proposed work does not include any new driveways.*

4.2 LANDSCAPING - SZDC 16.92

All proposed developments for which the Site Plan Review is required pursuant to Section 16.90.020 shall submit a landscaping plan that meets the standards of Section 16.92. All areas not occupied by structures, paved roadways, walkways, or patios shall be landscaped or maintained according to an approved Site Plan.

Response*: The proposed work consists of the replacement of existing transmission poles and associated electrical lines within an established utility corridor and substation site. Disturbed areas will be restored following construction using a native, pollinator-friendly restoration seed mix.*

In response to staff comments, Applicant has agreed to provide the requested landscaping (25-foot buffer) to the greatest extent practicable, while taking into account existing site constraints, including an access road that cannot be safely altered, existing overhead critical utility infrastructure, and a public utility easement (PUE) that staff recommended and PUE policy affirms should <u>not</u> include landscaping. A landscape plan reflecting this commitment is included in

Appendix J. All plantings proposed in the Landscape Plan will be limited to species and locations compatible with transmission line clearances, safety, and maintenance requirements. Plant species were chosen specifically for this site. They include a native ground cover seed mix and landscape plants that are compatible with the project and PGE landscaping maintenance plans.

The 8-foot PUE abuts the sidewalk along Langer Farms Parkway, which wraps around the northern and eastern sides of the Sherwood Substation. During the 23 July 2026 pre-application meeting, Craig Christensen (engineering), informed that plantings should avoid the PUE. In addition to the PUE, there is also an existing access road along the eastern side of the substation that is proposed to remain in its current location. The current alignment appropriately supports safe substation access and reflects existing site conditions, grading, drainage and utility constraints. Relocating the road would require additional site disturbance and infrastructure modifications while providing no material operational, safety, or engineering advantage.

There is neither an essential nexus nor rough proportionality under the Nollan/Dolan standards to require relocation of this existing road solely to accommodate additional plantings. The road serves an established utility function independent of the proposed development, and its current placement already satisfies safety and operational requirements. Therefore, the access road should remain in its existing location.

Given these two site constraints (access road and PUE), no plantings can be provided along the eastern side of the substation.

Because the work involves high-voltage transmission facilities that are considered critical infrastructure, landscaping must remain compatible with ongoing utility operations, safety clearances, and maintenance access. A mix of vegetation types are proposed, where possible, given site constraints. Tree planting near PGE transmission facilities shall follow PGE's Tree Planting Guide (Zone 4 – Near transmission lines). Where a high-voltage transmission line is on or near the site, trees shall have a mature height of no more than 15 feet and shall be planted at least 30 feet from the line. This guidance is available on PGE's online tree planting guide[2]. Restrictions on where trees can be planted and required maintenance to vegetation within PGE's transmission line corridors is necessary to prevent sustained outages due to encroachment from fall-ins or due to the blowing together of lines and vegetation and is consistent with National Electric Safety Code Rule 218 and American National Standards Institute A300 Part 7. According to these requirements, trees are proposed where compatible with existing utility infrastructure and shrubs and groundcovers are proposed elsewhere, where possible.

The work does not create new building footprints, parking areas, or other developed surfaces that would typically trigger full new landscaping requirements under Chapter 16.92.

[2] PGE's Tree Planting Guide: https://portlandgeneral.com/outages-safety/safety/tree-maintenance/tree-planting-guide

5. DIVISION VI – PUBLIC INFRASTRUCTURE

The proposed work does not require the construction or improvement of any new public infrastructure (streets, water, sanitary sewer, stormwater, or other public facilities) and therefore complies with, or is not subject to, the applicable standards of Division VI.

5.1 TRANSPORTATION FACILITIES SZDC 16.106

The proposed work does not involve the creation of any new public streets, does not require right-of-way dedication or frontage improvements under Section 16.106.020, and will not generate vehicle trips that trigger the Traffic Impact Analysis thresholds of Section 16.106.080. Access to the work area will utilize existing routes and will not create new driveway conflicts or violate the access-spacing and management standards of this Chapter. Accordingly, the work complies with all applicable performance standards of Chapter 16.106.

5.2 PUBLIC AND PRIVATE UTILITIES –SZDC 16.118

The proposed work consists of electric utility infrastructure replacement and interconnection and does not create new lots or a development that requires the installation of public telecommunication conduits or additional franchise utility conduits under Section 16.118.010. Any utility work associated with the proposed work will be located, sized, and constructed consistently with applicable City and utility company standards, including any required public utility easements. The proposed work therefore complies with the performance standards of Chapter 16.118.

6. DIVISION III - ENVIRONMENTAL RESOURCES

6.1 GENERAL PROVISIONS AND CONFORMANCE – SZDC 16.132

This Section is intended to protect, preserve, and otherwise properly manage the City's natural and environmental resources and to establish performance standards allowing the City to assess the impact of residential, commercial, industrial, and institutional development on the quality of the City's environment.

The standards of this Chapter apply to new uses or changes to existing uses in commercial, industrial, and institutional zones.

***Response**: The proposed work is for the replacement and upgrade of existing PGE transmission infrastructure within an established utility corridor and substation site in the LI zone. It does not introduce a new use that generates environmental impacts beyond those of the existing facilities.*

6.2 PARKS, TREES, AND OPEN SPACES - SZDC 16.140

Most of Chapter 16.140 is not applicable to this utility infrastructure project, except the visual corridor standards in SZCDC 16.140.040 and Street Trees standards in 16.140.050, which are addressed below.

16.140.040 – Visual Corridors - New developments shall be required to establish a landscaped visual corridor according to the Table in 16.140.040. The applicable standard for this site could be 10 feet based on the collector street adjacency of the project.

***Response**: The Sherwood Substation and utility corridor has frontage on SW Langer Farms Parkway, a collector street. Under the clear standards of SZCDC 16.140.040, a visual corridor of 10 feet is required for collector streets.*

City staff has indicated during pre-application discussions that it may seek to expand the required visual corridor width to 25 feet, citing the Adams Avenue North Concept Plan and the discretionary nature of CUP approval.

The proposed work consists of the replacement of existing transmission poles and associated electrical lines within an established utility corridor and substation site. Disturbed areas will be restored following construction.

In response to staff comments, Applicant will provide landscaping at the requested 25-foot depth to the greatest extent practicable, while accounting for existing site constraints (including an access road that cannot be safely altered and PUE where plantings cannot occur). A landscape plan reflecting this approach is included in Appendix J.

Landscaping will be limited to materials compatible with high-voltage transmission facilities—specifically low-growing groundcover and grasses. Tall trees and dense plantings are incompatible with transmission line clearances, safety, and maintenance requirements and are not proposed.

Because the work involves high-voltage infrastructure rather than new buildings, parking areas, or other typical development surfaces, full landscaping standards that apply to conventional Site Plan applications are not triggered in the same manner. The limited landscaping described above is proposed solely to respond to staff's request while remaining operationally feasible.

SZCDC 16.140.060 – Street Trees - SZCDC 16.140.060 requires the installation of street trees along public streets abutting or within new development or redevelopment, subject to specified location, size, spacing, and species standards. The code expressly allows exceptions where planting would interfere with existing utility lines, and no suitable substitute tree is appropriate for the site.

***Response**: The proposed work is limited to the replacement of existing transmission poles and associated electrical lines within an established utility corridor. It does not constitute new development or redevelopment that creates building frontage or typical streetscape conditions requiring a full complement of street trees. Where the code would otherwise call for street trees, the presence of high-voltage transmission facilities triggers the utility line exception in 16.140.060.A.4.c. Any plantings proposed near the public right-of-way will be limited to species and locations compatible with transmission line clearances, safety, and maintenance requirements. Tall canopy trees under or immediately adjacent to the transmission lines are not proposed. No existing street trees will be removed because of the proposed work.*

6.3 NOISE - SZDC 16.144

SZCDC 16.144 requires that uses comply with the noise standards in OAR 340-035-0035 and, in certain cases involving noise sensitive uses, may require a professional noise study and mitigation plan.

SZCDC 16.144.010, Generally All otherwise permitted commercial, industrial, and institutional uses in the City shall comply with the noise standards contained in OAR 340-35-035. The City may require proof of compliance with OAR 340-35-035 in the form of copies of all applicable State permits or certification by a professional acoustical engineer that the proposed uses will not cause noise in excess of State standards.

SZCDC 16.144.020, Noise Sensitive Uses When proposed commercial and industrial uses do not adjoin land exclusively in commercial or industrial zones, or when said uses adjoin special care, institutional, or parks and recreational facilities, or other uses that are, in the City's determination, sensitive to noise impacts, then:

A. The applicant shall submit to the City a noise level study prepared by a professional acoustical engineer. Said study shall define noise levels at the boundaries of the site in all directions.

B. The applicant shall show that the use will not exceed the noise standards contained in OAR 340-35-035, based on accepted noise modeling procedures and worst case assumptions when all noise sources on the site are operating simultaneously.

C. If the use exceeds applicable noise standards as per subsection B of this Section, then the applicant shall submit a noise mitigation program prepared by a professional acoustical engineer that shows how and when the use will come into compliance with said standards.

***Response**: The proposed work consists of upgrades to existing utility infrastructure. Construction may generate temporary noise associated with the use of construction vehicles, cranes, drilling equipment, and related activities; however, such noise will be intermittent, localized, and limited to the construction period. Construction activities will be conducted in accordance with applicable local regulations and permit conditions and any applicable construction-hour restrictions.*

Following construction, the transmission line will generate only minimal operational noise. Under certain atmospheric conditions, particularly during periods of high humidity, fog, rain, or frost, high-voltage conductors may produce audible corona noise. Corona noise is an inherent characteristic of high-voltage transmission facilities and typically consists of a low-level crackling or hissing sound that is most noticeable during wet weather. Modern 230-kV transmission line design incorporates conductor sizing, conductor surface quality, hardware selection, and maintenance practices that minimize corona discharge and associated audible noise. Modeled audible noise and corona noise levels for the proposed work are included in the EMF Study provided as Appendix G.

Because the proposed work upgrades an existing transmission facility rather than introducing a new industrial noise source, operational noise levels are expected to be comparable to those of

the existing facility and are not anticipated to exceed the applicable Oregon noise standards contained in OAR 340-035-0035 at the project boundaries.

6.4 VIBRATIONS - SZDC 16.146

SZCDC 16.146 requires that commercial, industrial, and institutional uses not cause discernible vibrations exceeding a peak of 0.002 gravity at the property line, except for brief or construction-related vibrations that are expressly exempt.

SZCDC 16.146 – Vibrations. SZCDC 16.146 requires that commercial, industrial, and institutional uses not cause discernible vibrations exceeding a peak of 0.002 gravity at the property line (except for vibrations lasting 5 minutes or less per day), and provides that construction-related vibrations are exempt.

SZCDC 16.146.010, Generally All otherwise permitted commercial, industrial, and institutional uses shall not cause discernible vibrations that exceed a peak of 0.002 gravity at the property line of the originating use, except for vibrations that last 5 minutes or less per day, based on a certification by a professional engineer.

SZCDC 16.146.020, Exceptions This Chapter does not apply to vibration caused by construction activities including vehicles accessing construction sites, or to vibrations caused by automobiles, trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designated rights-of-way, travelways, flight paths or other routes. Nothing in this Chapter shall preclude the City from abating any vibration problem as per applicable City nuisance and public safety ordinances.

***Response**: The proposed work consists of upgrades to existing utility infrastructure. Construction activities are expressly exempt from the vibration standards of this Chapter under Section 16.146.020. Any temporary vibrations associated with construction equipment, vehicles, or related activities will be intermittent, localized, and limited to the construction period.*

Following construction, the transmission line itself does not generate operational vibrations. Because the work upgrades an existing facility rather than introducing a new industrial vibration source, no discernible vibrations exceeding the 0.002 gravity standard are anticipated at the property line.

6.5 AIR QUALITY - SZDC 16.148

SZCDC 16.148 – Air Quality. SZCDC 16.148 requires that commercial, industrial, and institutional uses comply with applicable State air quality rules and statutes, and that proof of compliance be provided through State permits or a professional engineer's certification.

SZCDC 16.148.010, Generally All otherwise permitted commercial, industrial, and institutional uses shall comply with applicable State air quality rules and statutes:

A. All such uses shall comply with standards for dust emissions as per OAR 340-21-060.

B. Incinerators, if otherwise permitted by Section 16.138.020, shall comply with the standards set forth in OAR 340-25-850 through 340-25-905.

C. Uses for which a State Air Contaminant Discharge Permit is required as per OAR 340-20-140 through 340-20-160 shall comply with the standards of OAR 340-220 through 340-20-276.

SZCDC 16.148.020, Proof of Compliance Proof of compliance with air quality standards as per Section 16.148.010 shall be in the form of copies of all applicable State permits, or if permits have not been issued, submission by the applicant, and acceptance by the City, of a report certified by a professional engineer indicating that the proposed use will comply with State air quality standards.

Response: *The proposed work consists of upgrades to existing utility infrastructure. Construction activities may generate temporary, localized dust associated with vehicle movement, excavation, and equipment operation; these emissions will be controlled through standard construction best management practices (water application, covering of stockpiles, and equipment maintenance) consistent with OAR 340-21-060.*

Following construction, the transmission line does not involve incineration, process emissions, or any activity that requires a State Air Contaminant Discharge Permit. Operational air quality impacts are expected to be negligible and comparable to the existing facility. No State air quality permits are required for the completed project, and the proposal complies with the applicable standards of Chapter 16.148.

6.6 ODORS - SZDC 16.150

SZCDC 16.150. - Odors. Requires that commercial, industrial, and institutional uses incorporate the best practicable design and operating measures so that odors are not discernible beyond the site boundaries, and that the applicant provide a narrative explanation of any odorous emissions.

SZCDC 16.150.010, Generally All otherwise permitted commercial, industrial, and institutional uses shall incorporate the best practicable design and operating measures so that odors produced by the use are not discernible at any point beyond the boundaries of the development site.

SZCDC 16.150.020, Standards The applicant shall submit a narrative explanation of the source, type and frequency of the odorous emissions produced by the proposed commercial, industrial, or institutional use. In evaluating the potential for adverse impacts from odors, the City shall consider the density and characteristics of surrounding populations and uses, the duration of any odorous emissions, and other relevant factors.

Response: *The proposed work consists of upgrades to existing utility infrastructure. Construction activities may produce temporary, localized odors associated with vehicle exhaust, equipment operation, and material handling; these will be intermittent, limited to the construction period, and controlled through standard construction practices.*

Following construction, the transmission line itself does not generate odors. No process emissions, waste handling, or other odor-producing activities are proposed. Operational odors are not anticipated, and none will be discernible beyond the project boundaries. The proposal therefore complies with the standards of Chapter 16.150.

6.7 HEAT AND GLARE - SZDC 16.152

SZCDC 16.152 – Heat and Glare SZCDC 16.152 requires that operations producing excessive heat or glare be conducted within enclosed buildings (except for exterior lighting), and that exterior lighting be directed away from adjoining properties and not exceed 0.5 foot-candle offsite when adjoining residential zones.

SZCDC 16.152.010, Generally Except for exterior lighting, all otherwise permitted commercial, industrial, and institutional uses shall conduct any operations producing excessive heat or glare entirely within enclosed buildings. Exterior lighting shall be directed away from adjoining properties, and the use shall not cause such glare or lights to shine offsite in excess of one-half (0.5) foot candle when adjoining properties are zoned for residential uses.

SZCDC 16.152.020, Exceptions Nothing in this Chapter shall preclude the City from abating any heat and glare problem as per applicable City nuisance and public safety ordinances.

Response: *The proposed work consists of upgrades to existing utility infrastructure. No enclosed buildings or operations that produce excessive heat or glare are proposed. Any temporary lighting used during construction will be directed downward and away from adjoining properties.*

Following construction, the transmission line itself does not generate heat or glare beyond typical utility infrastructure. There will be no permanent exterior lighting associated with the utility line. The proposal therefore complies with the standards of Chapter 16.152.

6.8 ENERGY CONSERVATION - SZCDC 16.154

SZCDC 16.154 establishes standards intended to encourage energy-efficient design and the conservation of energy resources in the community.

Response: *The proposed work supports regional energy reliability and the integration of renewable resources. The proposed work will interconnect a renewable energy resource to PGE's regional grid, helping to store and dispatch clean energy, alleviate transmission constraints, and improve system resilience. By enabling more efficient use of existing and future renewable generation, the Project advances energy conservation and grid-flexibility goals that benefit the Sherwood community and the broader region. The work itself consists of the replacement and upgrade of existing transmission infrastructure and does not introduce energy-intensive buildings or uses subject to the building-oriented energy conservation standards of this Chapter.*

6.9 FIRE PROTECTION - SZCDC 16.116.020

Fire protection requirements under SDC 16.116 and Tualatin Valley Fire & Rescue's (TVF&R's) Service Provider Permit process were reviewed with TVF&R. By email dated August 26, 2026, Deputy Fire Marshal Jason Arn confirmed that the proposed utility infrastructure improvements do not require TVF&R review and that a Service Provider Permit is not required for this project.

7. BACKGROUND AND PROPOSED WORK

The PGE Sherwood Substation occupies approximately 10 acres within the City of Sherwood on land zoned LI. The proposed work involves replacing existing PGE utility infrastructure and installing new electrical infrastructure to interconnect the Nottingham BESS to the Sherwood Substation and PGE's regional transmission grid. The PGE Sherwood Substation is designated critical infrastructure that provides a vital link for voltage transformation and power routing across the electrical grid. A Vicinity Map is provided in Appendix B.

This permit application evaluates the maximum impacts associated with the proposed work. Applicant may ultimately install fewer replacement poles or shorter replacement poles, but for purposes of a robust impacts analysis, Applicant defines the proposed work as follows:

- Upgrading up to five existing wood utility poles (approximately 60 feet in height) with steel monopoles up to 140 feet in height (less than 200 feet) to accommodate co-location of an existing 115-kV utility line and a new 230-kV gen-tie line; and,
- Interconnecting the utility lines to the existing PGE-owned Sherwood Substation at the PGE-defined point of interconnection within the northwest quadrant of the substation.

The proposed work is required to help alleviate existing transmission constraints, enhance seasonal reliability, and facilitate the delivery of renewable energy into PGE's system. These improvements support PGE's ability to maintain reliable, affordable service while advancing Oregon's statutory decarbonization objectives.

PGE will not allow any expansion of the existing substation footprint or changes to the perimeter fence. PGE will also not allow any relocation of existing utility infrastructure, including access roads. The Applicant is authorized only to perform the proposed work on PGE-owned property. All development and improvements approved under this application must not interfere with PGE's existing utility infrastructure and operations. PGE will own, maintain, and operate the upgraded electrical infrastructure following completion of construction.

Applicant plans to construct, own, and operate the Nottingham BESS, a lithium-ion battery energy storage facility capable of storing and delivering power to the PGE regional transmission grid. The Nottingham BESS received its Special Use and Development Review approval from Washington County in May 2025 (Casefile L2400314-SU/D; Appendix K).

Applicant previously completed an alternatives analysis to inform the siting of Nottingham BESS and the gen-tie route within Washington County. The County's land use approval evaluated alternatives and approved the proposed route shown on the figures provided in

Appendix B. Applicant completed an Alternatives Analysis, provided as Appendix I to address the portion of the gen-tie within the City of Sherwood from the point the gen-tie enters City limits to its point of interconnection within the northwest quadrant of the PGE Sherwood Substation. The Alternatives Analysis identified five siting criteria[3], which, when considered collectively, demonstrate that the proposed route is the most reasonable and feasible alternative for the proposed work within the City of Sherwood. The proposed route makes the most efficient use of existing PGE infrastructure and PGE-owned property and provides a direct and technically feasible connection to PGE's required point of interconnection. This configuration minimizes new infrastructure conflicts, accommodates PGE's existing and future system needs, is technically feasible, reduces the need for additional property rights, and minimizes environmental disturbance compared with establishing a new utility alignment.

This application requests approval of a Site Plan Review and a CUP from the City of Sherwood for the proposed transmission infrastructure upgrades described above. Site Plan Review is required under SZCDC 16.90.020 because the work involves the construction and modification of utility structures within the LI zone. CUP review is required under SZCDC 16.31.030 and 16.82.020 because the proposed replacement monopoles will be up to 140 feet in height, exceeding the 50-foot maximum height standard of the LI zone. The CUP is requested solely to authorize the additional height necessary for the safe and functional reconstruction of the existing transmission facilities. Note that the architectural drawing exhibit in Appendix B appears to show poles 3 and 4 extending to a height of 155 feet. This height includes below grade footings. Actual pole height will not exceed 140 feet.

No other deviations from applicable development standards are requested. The proposed work remains within the existing utility corridor and substation footprint and does not expand the developed area of the site.

7.1 OTHER PERMITS

7.1.1 WASHINGTON COUNTY

The proposed work will interconnect the Nottingham BESS in Washington County to the Sherwood Substation and PGE's regional transmission grid. The Nottingham BESS was permitted through Washington County with an Administrative Conditional Use Permit; the un-appealed land use decision (Casefile L2400314-SU/D) was dated 16 May 2025. A portion of the transmission line that is outside of the City of Sherwood is within the 100-year flood plain, and the Applicant has obtained a Flood Plain Alteration permit from Washington County to install above-ground electrical distribution lines on a single-pole system within the flood plain. The un-appealed land use decision (Casefile L2500207-FP) was dated 7 October 2025.

[3] The five siting criteria are: least impact to existing PGE infrastructure, least impact to future PGE infrastructure, technical feasibility, site control, and minimal environmental impacts.

7.1.2 CITY OF SHERWOOD

Replacement poles are not proposed within the Langer Farms Parkway right-of-way. However, construction of the utility infrastructure may require work within the right-of-way, and the Applicant will obtain a right-of-way permit from the City of Sherwood Engineering Department. A building permit is not anticipated because the disturbed area from development within the City of Sherwood will not be equal to or greater than 500 square feet. Additionally, a stormwater permit is not anticipated because the development does not consist of 1,000 square feet or more of new/modified impervious surface.

8. CONDITIONAL USE REVIEW

Conditional use review is required for a portion of the work. The Applicant evaluates the potential impacts associated with the increase in pole height from 60 feet up to up to 140 feet on five utility monopoles under the applicable Sherwood Municipal Code conditional use criteria below.

8.1 SZCDC 16.82.020(C) – CONDITIONAL USE PERMIT CRITERIA

No conditional use shall be granted unless each of the following is found:

1. All public facilities and services to the proposed use, including but not limited to sanitary sewers, water, transportation facilities, and services, storm drains, electrical distribution, park and open space and public safety are adequate; or that the construction of improvements needed to provide adequate services and facilities is guaranteed by binding agreement between the applicant and the City.

***Response**: No new public services are required for the approximately 80 feet change in height of existing utility poles. This criterion is met.*

2. Proposed use conforms to other standards of the applicable zone and is compatible with abutting land uses in regard to noise generation and public safety.

***Response**: Applicant demonstrates in Section II above how the proposed work, including the approximately 80 feet change in height of existing utility poles, conforms to the LI zone standards. Abutting land uses include a state highway, a Home Depot, other LI zoned lands and County open space or rural residential properties. The approximately 80 feet change in height of existing utility poles does not pose a compatibility issue with these uses with regard to noise or public safety. Accordingly, this criterion is met.*

3. The granting of the proposal will provide for a facility or use that meets the overall needs of the community and achievement of the goals and/or policies of the Comprehensive Plan, the adopted City of Sherwood Transportation System Plan and this Code.

***Response**: The approximately 80 feet change in height of existing utility poles improves existing electrical infrastructure that serves PGE's regional grid which serves the community. These upgrades ease transmission bottlenecks, strengthen reliability, and support greater renewable energy delivery to the community. Specifically, the Sherwood 2040 Comprehensive Plan includes a vision to have "coordinated and connected infrastructure" because "quality public facilities,*

services, and utilities contribute to a high quality of life." The Sherwood 2040 Comprehensive Plan establishes two Infrastructure and Energy goals: Goal 4 is to "ensure reliable, safe, affordable and adequate public facilities to meet Sherwood's existing and future needs." and Goal 5 is to "work with partner agencies to coordinate service delivery including but not limited to stormwater, waste, electric, natural gas, broadband, and waste management". Upgrades to electrical infrastructure directly support the Comprehensive Plan visions and goals by improving electricity reliability and delivery for residents of the City.

The proposed work is also consistent with the 2014 Transportation System Plan which is designed to maintain acceptable transportation services while the City's population and employment grow. The work will not impede any existing transportation routes, nor will it add to transportation congestion. The work will also not impede access to or future development of the undeveloped parcel immediately adjacent to the PGE substation.

For these reasons, the City may find the approximately 80 feet change in height of existing utility poles meets this criterion.

4. Surrounding property will not be adversely affected by the use, or that the adverse effects of the use on the surrounding uses, the neighborhood, or the City as a whole are sufficiently mitigated by the conditions proposed.

***Response**: Surrounding property (i.e., within 300 feet of the proposed work) consists of a mix of commercial, industrial, transportation-related, open space and rural residential land uses. A figure depicting surrounding land use is included in Appendix B. The proposed work upgrades existing electrical transmission infrastructure within an existing utility corridor and does not establish a new land use or expand the existing transmission corridor. Construction activities will be temporary and managed through applicable permit requirements and best management practices to minimize short-term impacts related to noise, traffic, dust, and erosion.*

Upon completion of construction, the upgraded electrical infrastructure will continue to operate as an existing utility facility serving the regional electrical system. The project will not generate substantial new operational impacts, nor will it materially alter the appearance, function, or intensity of the existing utility corridor. Operational effects, including audible corona noise, EMF, and maintenance activities, are expected to remain consistent with those typically associated with properly designed and maintained 230-kV transmission facilities; an EMF Study is provided as Appendix G.

Visual simulations of the proposed work from key observation points along Highway 99W and SW Langer Farms Parkway are provided as Appendix F. The visual simulations show that the upgraded infrastructure will not have an adverse visual impact on surrounding areas because the proposed work is within an existing utility corridor.

Accordingly, the proposed work is not expected to adversely affect surrounding properties or the City as a whole. Any temporary construction-related effects will be minimized through compliance with applicable federal, state, and local regulations, permit conditions, and implementation of best management practices.

5. The impacts of the proposed use of the site can be accommodated considering size, shape, location, topography and natural features.

***Response**: The site is already developed as the PGE Sherwood Substation and forms part of a major utility corridor that contains numerous tall transmission poles, lattice tower structures, and wires. Existing conditions, which include significant existing utility infrastructure and proposed conditions are shown on the visual simulations provided in Appendix F. The proposed replacements will increase the height of certain existing poles by approximately 80 feet. Parcel size, configuration, and relatively flat topography readily accommodate the taller poles while maintaining required safety clearances and maintenance access. No significant natural features constrain the proposed work. Because the proposed work simply replaces and upgrades infrastructure already present in a highly established high-voltage corridor, the site is fully compatible with the proposed height increase. This criterion is met.*

6. The use as proposed does not pose likely significant adverse impacts to sensitive wildlife species or the natural environment.

***Response**: As previously stated, based on the results of biological and aquatic resource surveys conducted by ERM in 2024, the site does not contain any sensitive wildlife species or natural resources. The approximately 80 feet change in height of existing utility poles upgrades existing utility infrastructure already operating onsite. The proposed work replaces existing overhead electrical infrastructure within an established transmission corridor that has long functioned as part of the regional electrical system, rather than introducing overhead facilities into a previously undeveloped landscape, and a result it will not create a new linear obstacle for previously unobstructed habitat and will not substantially alter existing bird movement patter. While the replacement structures will be taller than the existing poles, the conductors will occupy an existing utility corridor where birds are already accustomed to the presence of overhead electrical facilities.*

On behalf of the Applicant, ERM completed an Avian Collision Risk Assessment, which is provided as Appendix H. This assessment demonstrates that because the proposed work is collocated with existing infrastructure within a highly developed utility corridor, the work will present minimal additional collision risk to birds in the area. Furthermore, the replacement transmission poles will be designed and constructed in accordance with current utility engineering standards that incorporate adequate conductor spacing and insulation clearances to minimize electrocution risk for large birds. Additionally, any potential collision risk associated with the additional height of poles and lines will be significantly reduced by utilizing bird diverters. Accordingly, the approximately 80 feet change in height of existing utility poles does not pose likely significant adverse impacts to sensitive wildlife species or the natural environment.

7. For wireless communication facilities, no Conditional Use Permit will be granted unless the following additional criteria is found: …

***Response**: Not Applicable; the work is not a wireless communication facility.*

8. The following additional criteria apply to transportation facilities and improvements subject to Conditional Use approval per Chapter 16.66. …

***Response**: Not Applicable; the work is not a transportation facility.*

9. CONCLUSION

As demonstrated in this application and the supporting materials, the proposed work satisfies the applicable Site Plan Review standards and CUP criteria of the Sherwood Zoning and Community Development Code.

The proposed work would remain within the existing utility corridor and would not expand the Sherwood Substation footprint or materially increase demand on public facilities and services. The replacement structures would use an established transmission corridor and would not create a new utility alignment, interfere with existing or planned transportation facilities, or preclude access to or future development of adjacent property. Although the taller replacement structures would increase the visibility of transmission infrastructure from some surrounding viewpoints, the facilities would remain within an existing utility setting characterized by the Sherwood Substation and overhead transmission infrastructure. Potential visual, noise, environmental, and other effects associated with the proposed work have been evaluated in the application and supporting technical studies. Temporary construction impacts would be minimized through applicable permit requirements and best management practices, and proposed landscaping and other mitigation measures would further address potential effects where practicable and consistent with PGE's operational and safety requirements.

The Applicant believes that all information, exhibits, materials, and studies submitted with this application are complete and sufficient to support approval. The Applicant respectfully requests that the City approve the CUP and Site Plan.

APPENDIX A APPLICATION FORM

APPENDIX B MAPS AND SITE PLANS

- Existing Conditions and Preliminary Site Plan
- Vicinity Map
- Surrounding Land Use
- Architectural Drawings
- Tax Maps

APPENDIX C TITLE REPORT AND DEED

APPENDIX D NEIGHBORHOOD MEETING DOCUMENTATION

APPENDIX E CWS PRESCREENING

APPENDIX F VISUAL SIMULATIONS

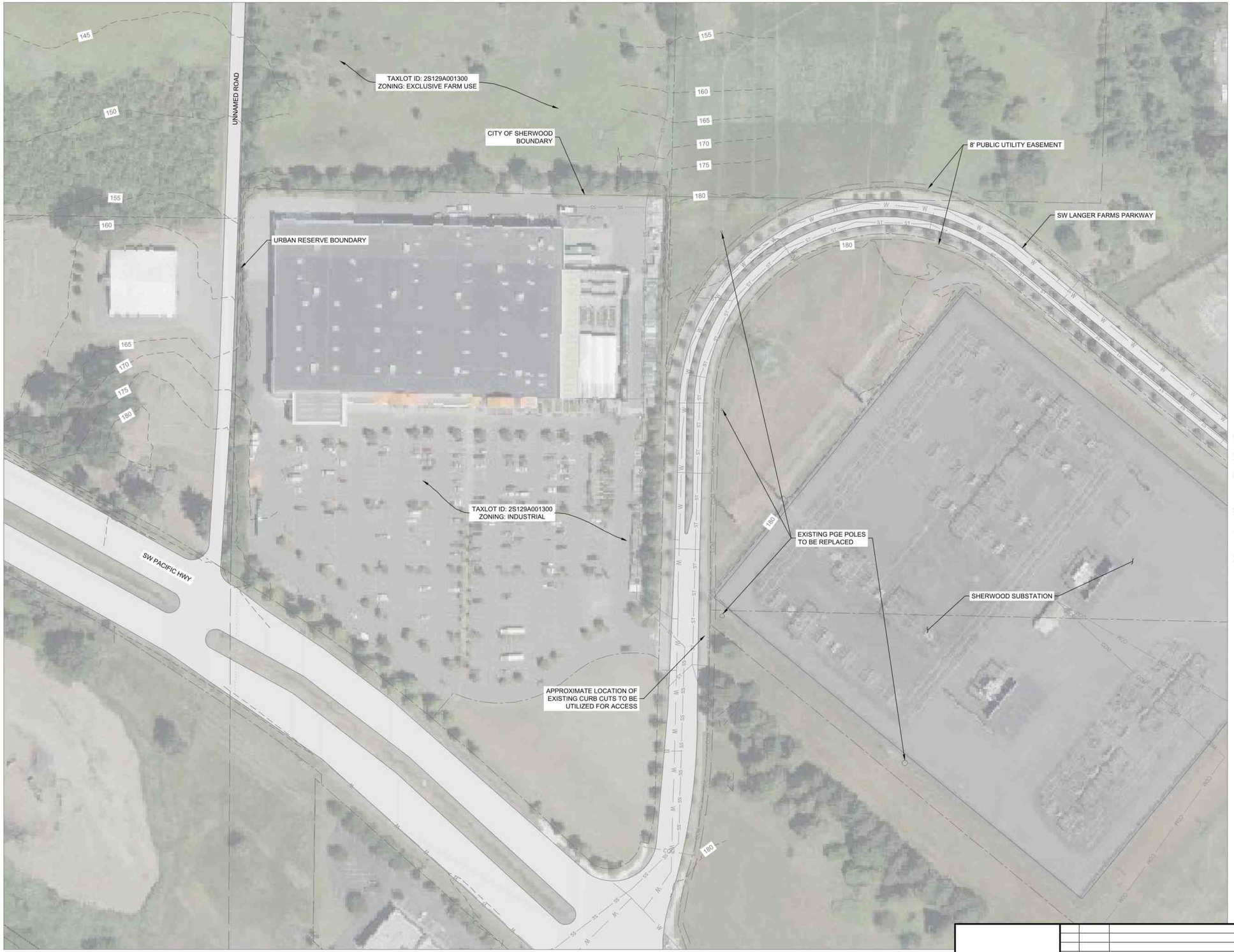
APPENDIX G EMF STUDY

APPENDIX H AVIAN COLLISION RISK ASSESSMENT

APPENDIX I ALTERNATIVES ANALYSIS

APPENDIX J LANDSCAPE PLAN

APPENDIX K NOTTINGHAM BESS CUP AND SITE PLAN APPROVAL



0 70 140

SCALE (IN FEET)

LEGEND

- PARCEL BOUNDARY
- EXISTING EASEMENT
- URBAN RESERVE BOUNDARY
- SHERWOOD CITY LIMITS
- EXISTING ROAD
- EXISTING CONTOUR (5')
- EXISTING COMMUNICATIONS UTILITY
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER UTILITY
- EXISTING POLES TO BE REPLACED

NOTES:

1. THE LIMITS OF DISTURBANCE (LOD) WITHIN THE CITY OF SHERWOOD LIMITS PRESENTED HEREIN ENCOMPASS APPROXIMATELY 2.6 ACRES.
2. EXISTING TOPOGRAPHY PRESENTED HEREIN HAS BEEN GENERATED FROM U.S. GEOLOGICAL SURVEY, NATIONAL GEOSPATIAL TECHNICAL OPERATIONS CENTER - 3D ELEVATION PROGRAM, 20240112, USGS NED 1/3 ARC-SECOND CONTOURS FOR VANCOUVER E, WASHINGTON 1 X 1 DEGREE (PUBLISHED 20240112).
3. THE COORDINATE SYSTEM IS NRS 2011 OREGON STATE PLANES, NORTH ZONE, INTERNATIONAL FOOT.
4. NO CITY OF SHERWOOD REGULATED NATURAL RESOURCES OR OTHER KNOWN SENSITIVE AREAS ARE IDENTIFIED WITHIN THE PORTION OF THE LOD LOCATED INSIDE CITY LIMITS.
5. EXISTING FEATURES SHOWN ARE BASED ON AVAILABLE RECORD INFORMATION, PUBLICLY AVAILABLE GIS DATA, AND OTHER SOURCES DEEMED RELIABLE, BUT HAVE NOT BEEN FIELD VERIFIED UNLESS OTHERWISE NOTED.

Developer/Applicant

Company	Tual bn, LLC.
Contact	Todd Ellwood
Address	515 N Flagler Drive, Suite P200 West Palm Beach FL 33401
Email Address	todd.ellwood@brightnightpower.com

Owner

Company	Portland General Electric

Plan Producer

Company	Environmental Resources Management, Inc.
Contact	Alex Conzemius
Address	1050 SW 6th Ave Ste. 1650 Portland OR 97204
Email Address	alex.conzemius@erm.com

ISSUED FOR PERMIT
NOT FOR CONSTRUCTION

Rev.	Date	Description	By	Chk
1	10/5/2026	ADDED EXISTING PGE POLES	DF	BR
0	8/31/2026	ISSUED FOR REVIEW	DF	BR

ERM

EXISTING CONDITIONS PLAN

PGE UTILITY FACILITY REPLACEMENT AND INTERCONNECTION
BrightNight LLC
WASHINGTON COUNTY, OR

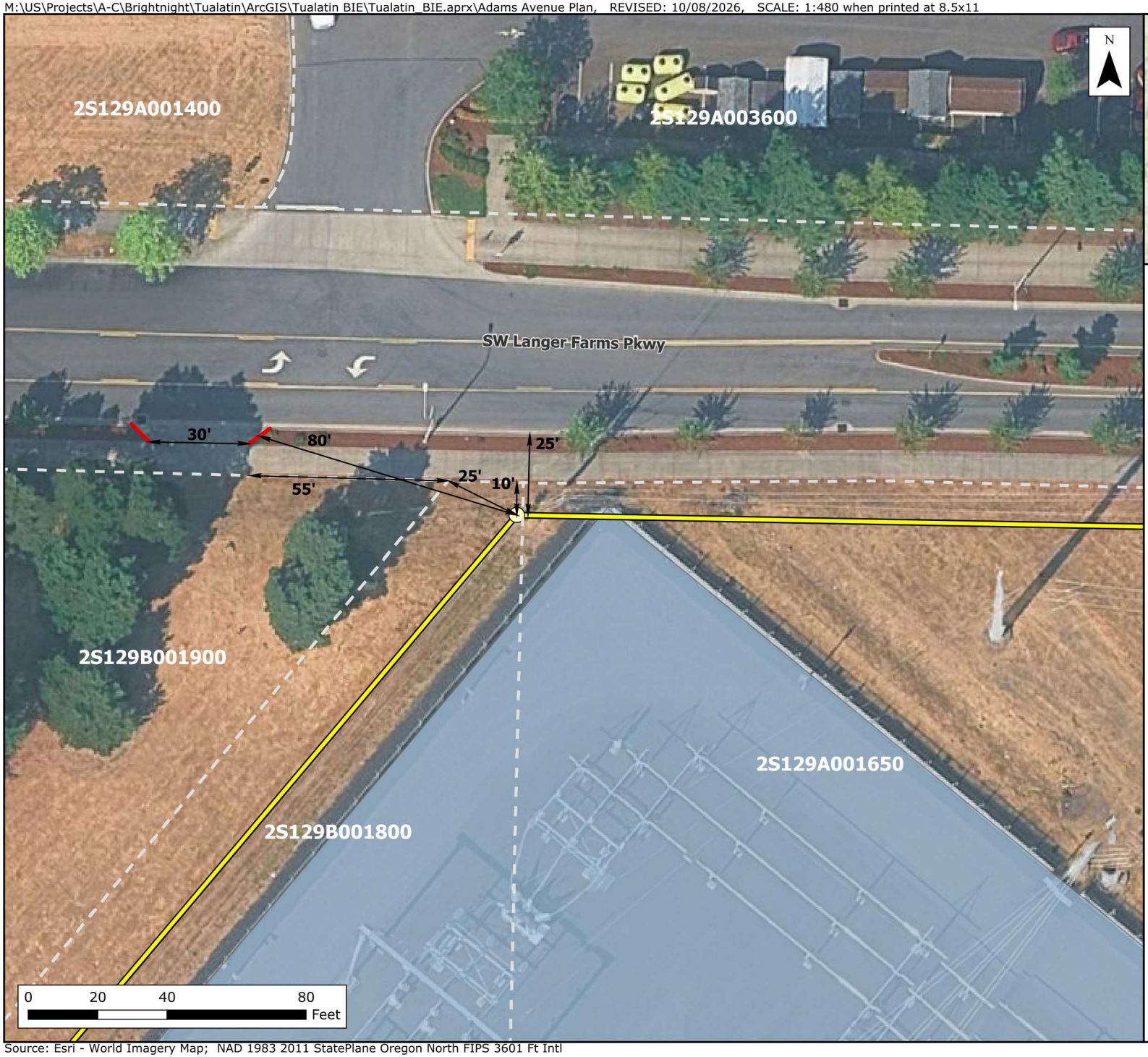
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PROJECT NUMBER: 0834897
SHEET NO.: 2
DATE DRAWN: 8/24/2026
DRAWN BY: D. FOSS

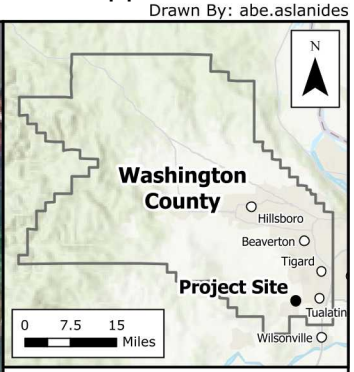
Environmental Resources Management

I:\gis\docs\11x02\data\Hollland Town\DWG\Civil-01\BrightNight\0834897\0834897 GEN_TIE SITE PLANS REV1.dwg Ex PLAN, PRINTED ON 10/5/2026 BY Danielle Foss

M:\US\Projects\A-C\Brightnight\Tualatin\ArcGIS\Tualatin BIE\Tualatin_BIE.aprx\Adams Avenue Plan, REVISED: 10/08/2026, SCALE: 1:480 when printed at 8.5x11

Drawn By: abe.aslanides





Legend

- Sherwood City Limits
- Parcels
- Existing Curb Cut

Project Infrastructure

- Replacement Pole
- Proposed Utility Infrastructure
- PGE Sherwood Substation

Future Roadway and Connectivity Study

ERM Inc on behalf of TUAL bn LLC

City of Sherwood, OR

ERM

Source: Esri - World Imagery Map; NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl