

**GENERAL STRUCTURAL NOTES**

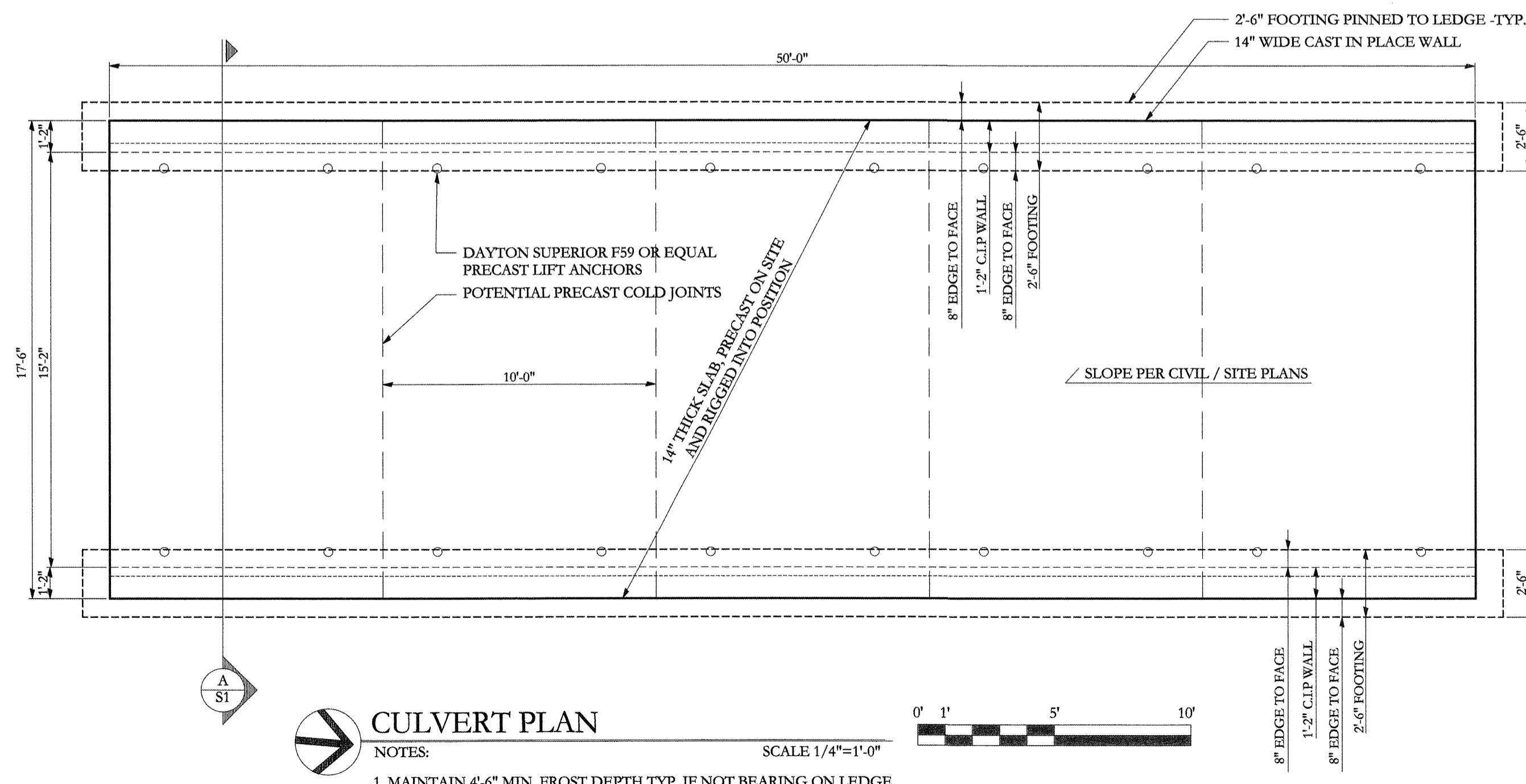
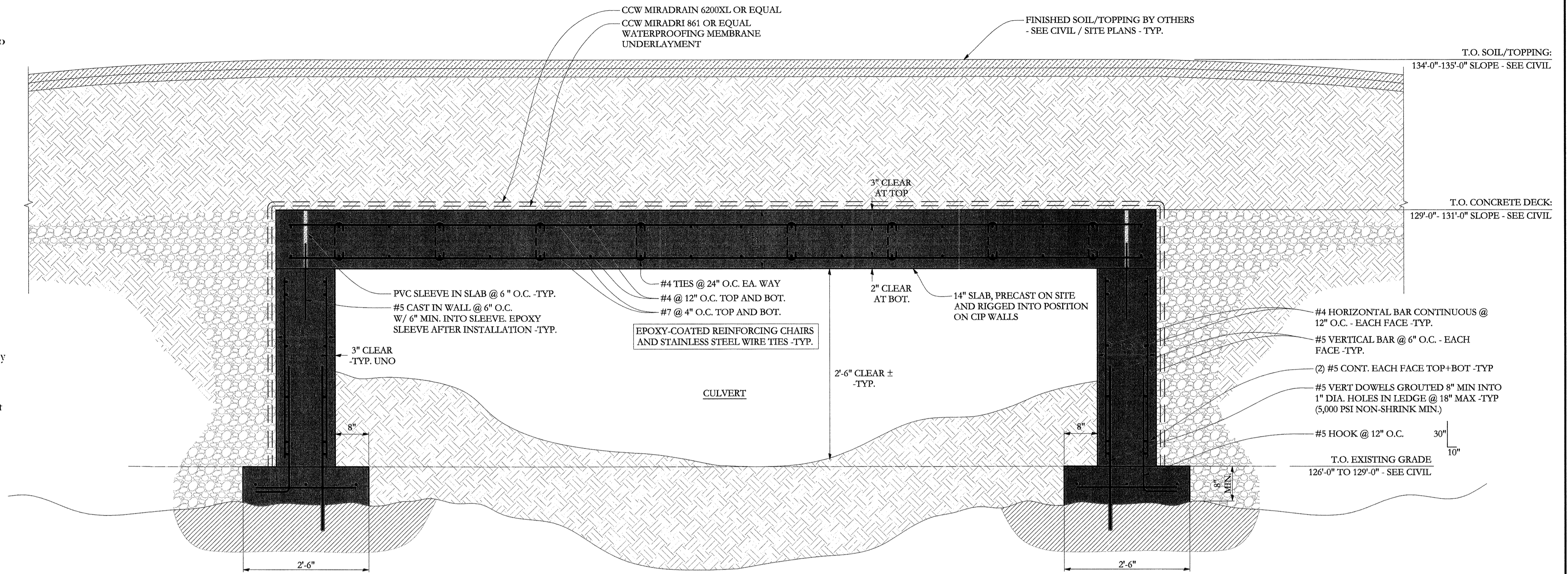
SI Job # 15-0169  
Portland Retirement Residence  
Box Culvert Design  
Portland, ME

**DESIGN LIVE LOADS:** MUHBC, ACI 318 and AASHTO/HY-25  
\* Vehicle/Traffic TA400 (56,438 #/ Axle)

**FOUNDATION:**  
\* Based on geotechnical report No. 14-1188 S by S.W. Cole, dated January 16, 2015. See report for earthwork requirements. Soils engineer shall verify soil conditions and types during excavation and prior to concrete placement.  
\* Footings shall bear on ledge, or otherwise be placed on undisturbed natural soil or compacted fill tested and approved by soils engineer where ledge bearing is not possible.  
\* Maximum design soil pressure: 4,000 psf on crushed stone on firm virgin soil.

**CONCRETE AND REINFORCEMENT:**  
\* Concrete shall conform to applicable provisions of ACI-301 and 318.  
\* Minimum 28 day compressive strength (f'c)  
\* Footings, slab, and walls: 5,000 psi w/ 6% air entrainment, max w/c ratio = .42  
\* Cement Type: I/II  
\* Deformed reinforcement: ASTM A615 grade 60, except bars specified to be field-bent, stirrups, and ties which shall be grade 40.  
\* Reinforcement shall be fabricated and placed per ACI Manual of Standard Practice (ACI-315). At splices, lap bars 50 diameters unless noted otherwise.  
\* Concrete cover over reinforcing: 1 1/2" for concrete placed against forms; 3" for concrete placed against earth. See also drawings.  
\* Keep reinforcement clean and free of dirt, oil, and scale. Oil forms prior to placing reinforcement.  
\* All reinforcing steel to be epoxy coated  
\* All reinforcing steel **crossing cold joints** shall be stainless steel [when required by DOT].  
\* Repair damaged epoxy coated bars with approved repair coating.  
\* Grout: 2500 psi at 28 days. Vibrate to consolidate.

**STRUCTURAL ERECTION AND BRACING REQUIREMENTS**  
\* The structural drawings illustrate the completed structure with all elements in their final positions, properly supported and braced. The contractor, in the proper sequence, shall provide proper shoring and bracing as may be required to achieve the final completed structure.  
\* These plans have been engineered for construction at one specific building site. Builder assumes ALL responsibility for use of these plans at Any Other building site. Plans shall not be used for construction at any other building site without specific review by the engineer.  
\* Observations of foundation reinforcing as required by the owner, lender, insurer, building department or any other party will be accomplished by the engineer at the owner's expense. At least 24 hours advance notice is requested.



**CULVERT PLAN**  
NOTES:  
1. MAINTAIN 4'-6" MIN. FROST DEPTH TYP. IF NOT BEARING ON LEDGE

DESIGNED	CHECKED	
CDM	CLB	
E	CDM 05-04-2015	ADDED FOOTPATH/RAILS & CORRESPONDING NOTE 12
D	CDM 02-26-2015	REVISED UTILITIES IN OCEAN AVENUE
C	CDM 01-23-2015	REVISED BORINGS/PROBES
B	CDM 01-23-2015	PLAN REVISED TO REFLECT TITLE COMMITMENT 14030089 REVISED 11-12-15
A	CDM 01-07-2015	ISSUED TO CLIENT FOR REVIEW
REV:	BY: DATE: STATUS:	

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FOR PERMIT  
STATE OF MAINE  
AARON C. JONES  
No. 10969  
LICENSED PROFESSIONAL ENGINEER  
8/25/15

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**BUILD WITH CONFIDENCE**  
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S# 15-0169

BOX CULVERT PLAN AND SECTION  
ON LAND OWNED BY:  
GRAVES HILL LAND COMPANY, LLC  
802-898 OCEAN AVENUE  
PORTLAND, MAINE 04103  
PREPARED FOR:  
HAWTHORN DEVELOPMENT, LLC  
9310 NE VANCOUVER MALL DRIVE, SUITE 200  
VANCOUVER, WASHINGTON 98662-8210

PROJECT NO. 14432  
SCALE 1" = 50'  
SHEET 8 OF 14