



Section 1

Development Description

Section 1. Development Description

1.1 State Standards

Pursuant to the State's Site Law, the Applicant is providing a development description including:

- Project narrative;
- Topographic map (Exhibit 1-1);
- Construction plan (Exhibit 1-2); and
- Drawings (Exhibit 1-3).

1.2 Project Narrative

Twin Energy LLC (the "Applicant" or "Twin"), managed by Palmer Management Corporation, proposes to construct Twin Energy (the "Project"), a three-turbine wind energy facility in the Town of Rumford on South Twin Mountain, with associated infrastructure in both Rumford and the adjacent Town of Roxbury. The wind turbines are proposed in the Town of Rumford which is an "expedited permitting area" as defined in the Wind Energy Act ("WEA"), 35-A M.R.S. § 3451(3) and has an existing Wind Energy Facility Ordinance. The Project is designed to comply with state zoning and design requirements.

The Applicant proposes installing three GE-6.1-158 (or similar) wind energy generators. These machines were selected due to their nameplate capacity (6.1 Megawatts or "MW"), allowing the Applicant to maximize the output of the site while minimizing the Project's footprint. The installed capacity of the Project is expected to be 18.3 MW. The Project is designed to maximize the clean, renewable power produced while minimizing impacts to the surrounding ecology.

The turbine model will be on a 117-meter tower with a rotor diameter of 158 meters; each turbine's total tip height will be 196 meters. The wind turbines will be lit per Federal Aviation Administration regulations. (See Section 32: Best Practical Mitigation.) The Project wind turbines will be on South Twin Mountain (elevation 1900 ft to 2156 ft), 0.85 miles south of the operational RoxWind Project, and within the area designated as expedited for permitting under the Maine Wind Energy Act ("WEA"). This location is immediately south of the border between Rumford and Roxbury, Maine. The three turbines are all located in Rumford on 618-acre property, known as Tax Map 401, Lot 6. The associated facilities are on that property and extend onto adjoining parcels as depicted on the site plan (Exhibit 1-3).

The Project is designed to utilize an existing road on private property that originates from Horseshoe Valley Road in Roxbury and heads east toward the peak of North Twin

Mountain.¹ The road was constructed for the RoxWind project, commissioned in 2021. The existing road is approximately 4,300 feet and is entirely within the Town of Roxbury. The Applicant has an easement to use the existing road.

At the top of North Twin, approximately 10,760 feet of new road will be constructed along private property to connect North and South Twin and provide access to the three Twin turbines. This new road is approximately 24 feet wide and will drop in elevation as it descends the peak of North Twin and then will maintain a stable elevation until it ascends in Rumford at South Twin. This new road is designed to minimize wetland impacts and new land clearing while meeting necessary design specifications for delivery of the equipment. In addition, the Project has worked in consultation with the MDIFW to minimize impacts to listed species, and, where such impacts occur, provide improvements to the existing site conditions.

In Rumford, the Project will require approximately 3,266 feet of crane roads and pads to connect and build each turbine. The crane road will be approximately 39.5 feet wide, and the crane pads are approximately 120 feet long x 70 feet wide. The wind turbine foundations will be just outside of these crane pads.

As the majority of the property under the Project is forested, in most locations the new access road, ridge line road, and crane pads are screened by existing vegetation and will not be highly visible from outside the immediate area. For additional details on the visual impact associated with the Project, see Section 30.

The Project is in the Independent System Operator (“ISO-NE”) queue and is being studied. The outcome of the studies may affect the final interconnection point and will dictate the equipment required by Central Maine Power (“CMP”) and ISO-NE to interconnect and operate the facility. A feasibility study was completed in 2022 and the Applicant is working with CMP to finalize those designs.

The Applicant proposes to install the following:

- Collection Lines: Among the turbines and within the crane roads and pad areas, the Applicant proposes to install underground communication and electrical

¹ The Applicant conducted environmental surveys and consulted with the Department of Inland Fisheries and Wildlife (“MDIFW”) to determine site access. It was determined through that process that utilizing the existing road would minimize the overall impact of the Project. See Section 7 for details on the environmental surveys and consultations for the Project.

infrastructure. Beyond the crane roads and crane pads, the lines will ascend a riser pole and run overhead, along the new access road, and then toward the point of interconnection (adjacent to existing cleared areas and collector systems). At the point of interconnection, the Project collector lines are expected to tie into CMP's existing Section 137 line.

- Substation and Switchyard: There is no Project-owned substation or switchyard. Project-owned infrastructure will end at the point of change in ownership on property controlled by the Project.
- Met Tower: To comply with ISO-NE requirements, the Applicant proposes to erect a 10-meter tall met tower on South Twin to collect "live" meteorological data.

The Applicant proposes a communication building along Roxbury Notch Road near the point of interconnection. The communications building will be approximately 14 feet by 19 feet and house communications, control, and sensitive electronic equipment. This land is not actively used for timber harvesting and currently is used to host electrical and communications infrastructure, both for CMP and the existing RoxWind project. The addition of the Project's infrastructure should not noticeably alter the current use of this property.

The Project is primarily proposed on land that has been historically used for timber harvesting and will continue to be used for timber harvesting during the Project's operations. Easements for the Project are granted across properties that host electrical infrastructure. Only a small portion of the parcels' acreage will be removed from timber harvesting during the life of the Project. New infrastructure designed for the Project includes improving access historically used by equipment on site and stabilizing stream crossings impacted by harvesting activities. At the end of the Project's useful life, and after it has been decommissioned, the land used for the Project will be revegetated as dictated through the decommissioning process.

A draft schedule of the construction sequence is described in Table 1.1 on the following page. (This schedule is subject to change.)

Table 1.1

Activity	2024					2025											
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Clearing & Grubbing																	
Blasting																	
Earthwork																	
Foundations																	
Turbine Delivery																	
Turbine Erection																	
Collector Line Construction																	
Testing & Commissioning																	
COD																	

A more detailed construction plan is included in Exhibit 1-2.

1.3 Topographic Map

A topographic map is included as Exhibit 1-1. The Project is in the Rumford Quadrangle.

1.4 Construction Plan

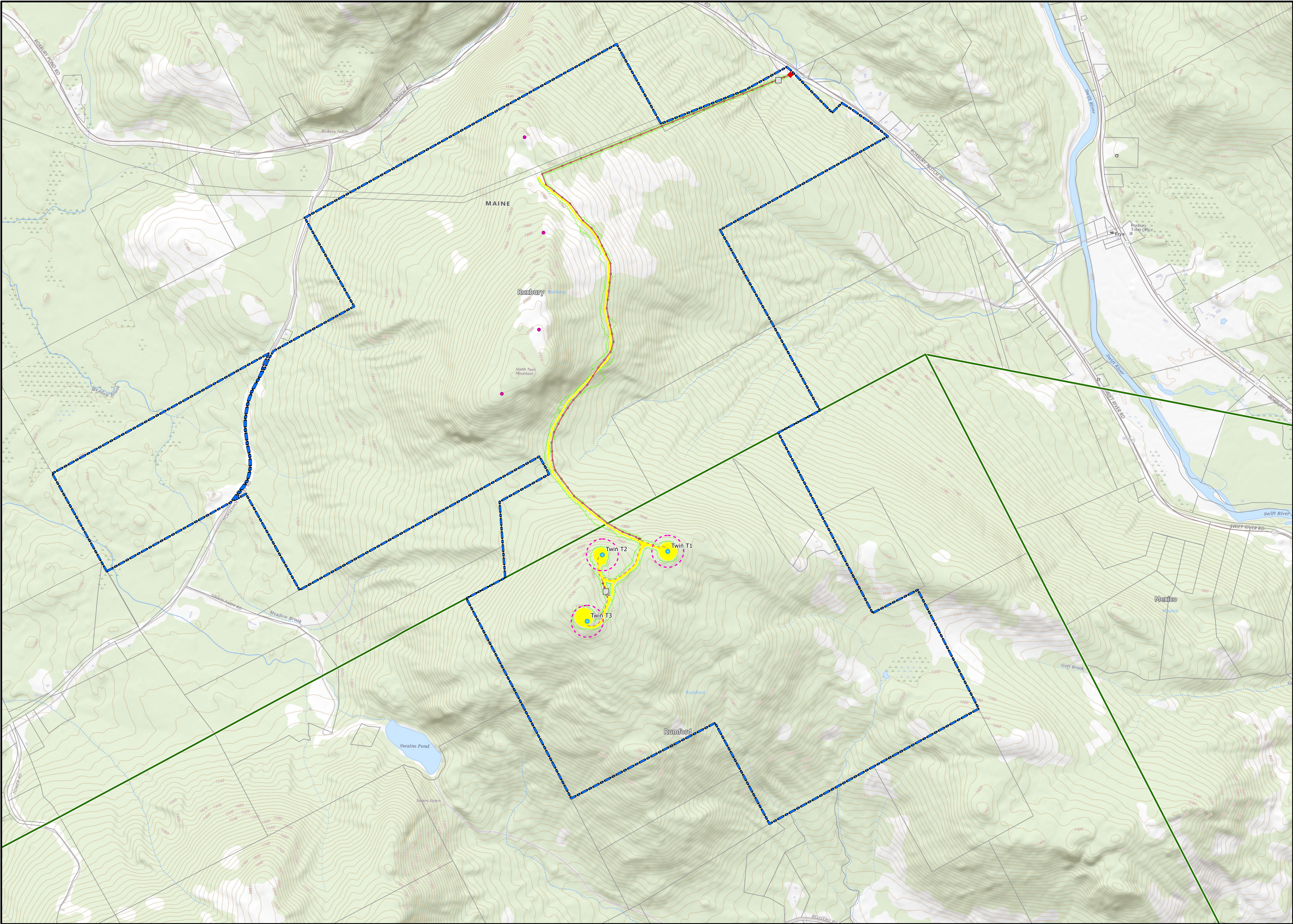
A detailed construction plan is included as Exhibit 1-2.


1.5 Drawings

Construction drawings are included as Exhibit 1-3.



Exhibit 1-1
Topographic Map



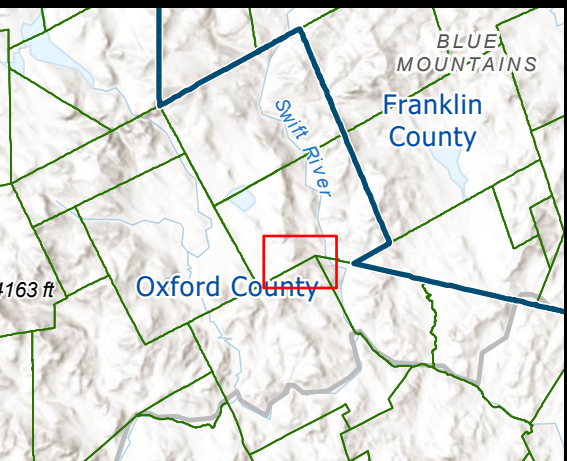


DEVELOPER:
TWIN ENERGY LLC
13 ELM STREET
COHASSET, MA 02025

Legend

- Project Boundary
- Turbine Locations
- Turbine Blade Overhang
- Project Roads
- Tree Clearing
- SCADA Building or Storage Locations
- 10m Met Tower
- Pole Locations
- Underground Electrical
- Overhead Collector Line
- Existing Wind Turbines
- Point of Interconnection
- Property Lines
- Maine Town Boundary

**TWIN ENERGY PROJECT
OXFORD COUNTY, ME
OVERVIEW MAP**



DATE: 11/1/2023
DRAWN BY: SJS
CHECKED BY: LDM

SCALE
400 200 0 400 800 1,200 Feet

FIGURE 1

Exhibit 1-2 Construction Plan

The Applicant will construct the Project in a manner that minimizes environmental impacts and complies with all regulatory and agency requirements. On an ongoing and as needed basis, the Applicant will employ several environmental consultants to provide their expertise on specific environmental concerns, such as wetland impacts, soil disturbances, and bat habitat. The Applicant have incorporated the consultants' recommendations into the Project design and construction plan.

Below is a sample of some of the recommendations that the Applicant will follow, to the extent feasible, to minimize the Project's environmental impacts:

- Collector line clearing will occur during the winter under frozen conditions to reduce soil disturbance.
- Several best management practices for erosion and sediment control will be utilized, such as stopping work during periods of rain and regularly checking erosion control barriers.

The Applicant is submitting their SLODA permits in November 2023. Assuming the permitting process goes according to plan, the Applicant expects to begin construction in August 2024 and finish in November 2025. As mentioned above, much of the clearing and staging activities will occur in the winter construction period, which lasts from November 1st, 2024, to April 15th, 2025, in order to reduce soil disturbance. To account for any winter weather in this period, the site contractor will perform a visual inspection of all erosion measures and make any necessary repairs after any rainfall or snowstorm. The following paragraphs provide an overview of the construction process; however, this schedule is subject to change due to weather and environmental conditions.

The Project will be accessed from an existing road that originates at 54 Horseshoe Valley Road and will use that access road as well as any existing logging roads to approach South Twin Mountain. The site will first need to be cleared before any construction can begin. To preserve soil stability during this process, erosion control measures will be implemented, and low-growing vegetation will be left untouched. Once the site has been sufficiently cleared, grubbing and earthwork will be completed to prepare for the construction of crane pads and access roads. Minor grading changes may be necessary to construct crane pads and access roads, but this process will occur in a manner that minimizes the area of exposed soil at any one time. Once the necessary roads and pads are built, foundations will be laid with concrete.

As the foundations are being laid, the electrical system will also be put into place. Underground collection systems along turbine strings will be constructed during earthwork activities in those



areas, and underground collection lines along existing access roads, as well as the overhead collection system, will be constructed at another time convenient with the Project schedule.

When turbines are delivered to the site, they will be delivered directly to the turbine pads. Turbine components will be erected by several crews who will each focus on a specific component (such as low-level, mid-level, and upper-level components). Turbine erection is expected to proceed linearly, but this may be subject to change depending on the final construction schedule. As this process is occurring, internal electrical work will also be underway.

After all of the construction is complete, an extensive clean-up and stabilization process will occur. Work areas will be cleared of all materials and equipment, excavations and access road ruts will be filled, and all construction rubbish will be disposed of. In addition, any disturbed soil will be respread with stockpiled topsoil, and laydown areas will be allowed to revegetate.



Exhibit 1-3
Drawings

MAINE DEP PERMIT SET

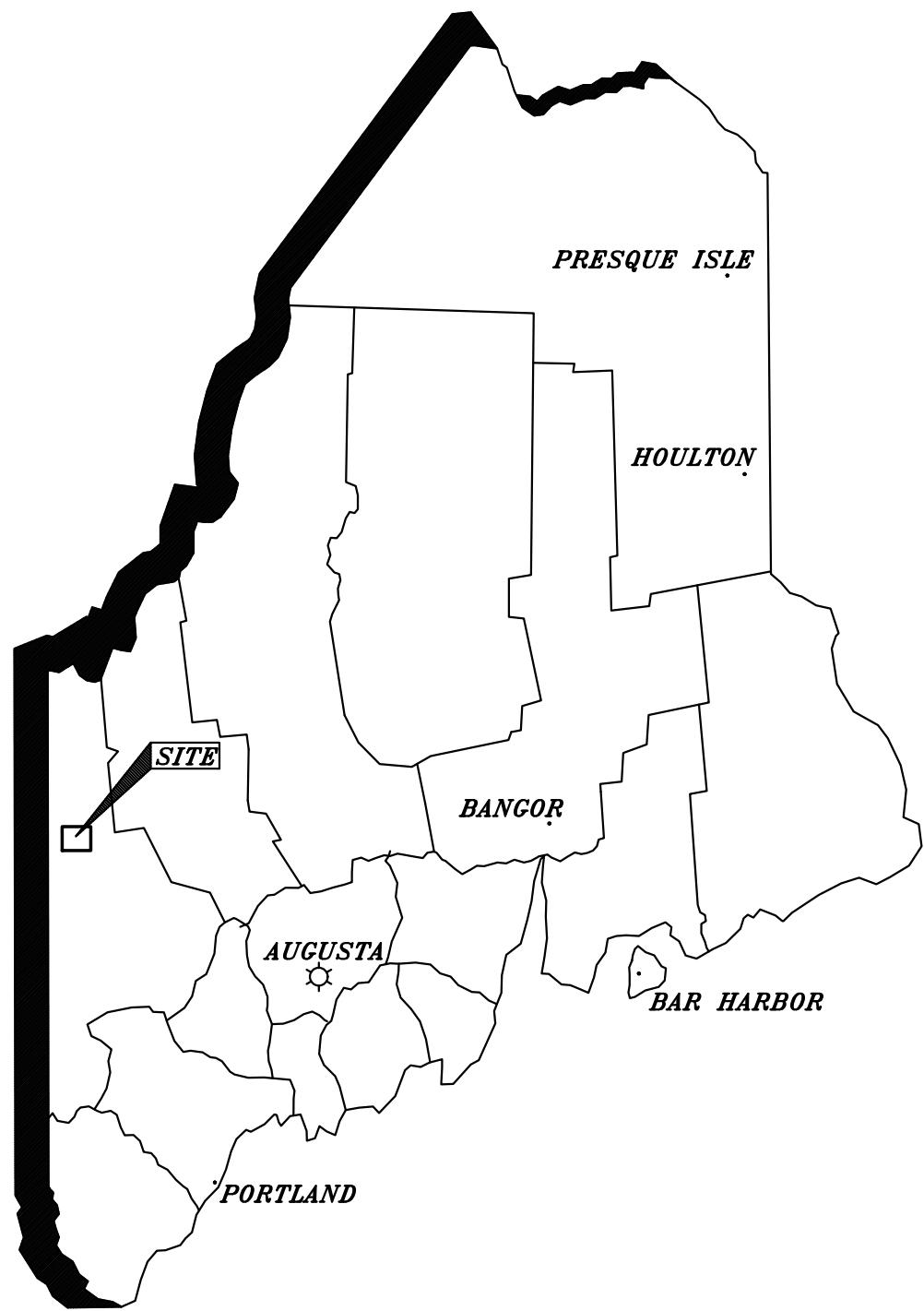
TWIN ENERGY LLC

RUMFORD, MAINE

PREPARED FOR TWIN ENERGY LLC.

381.20.01

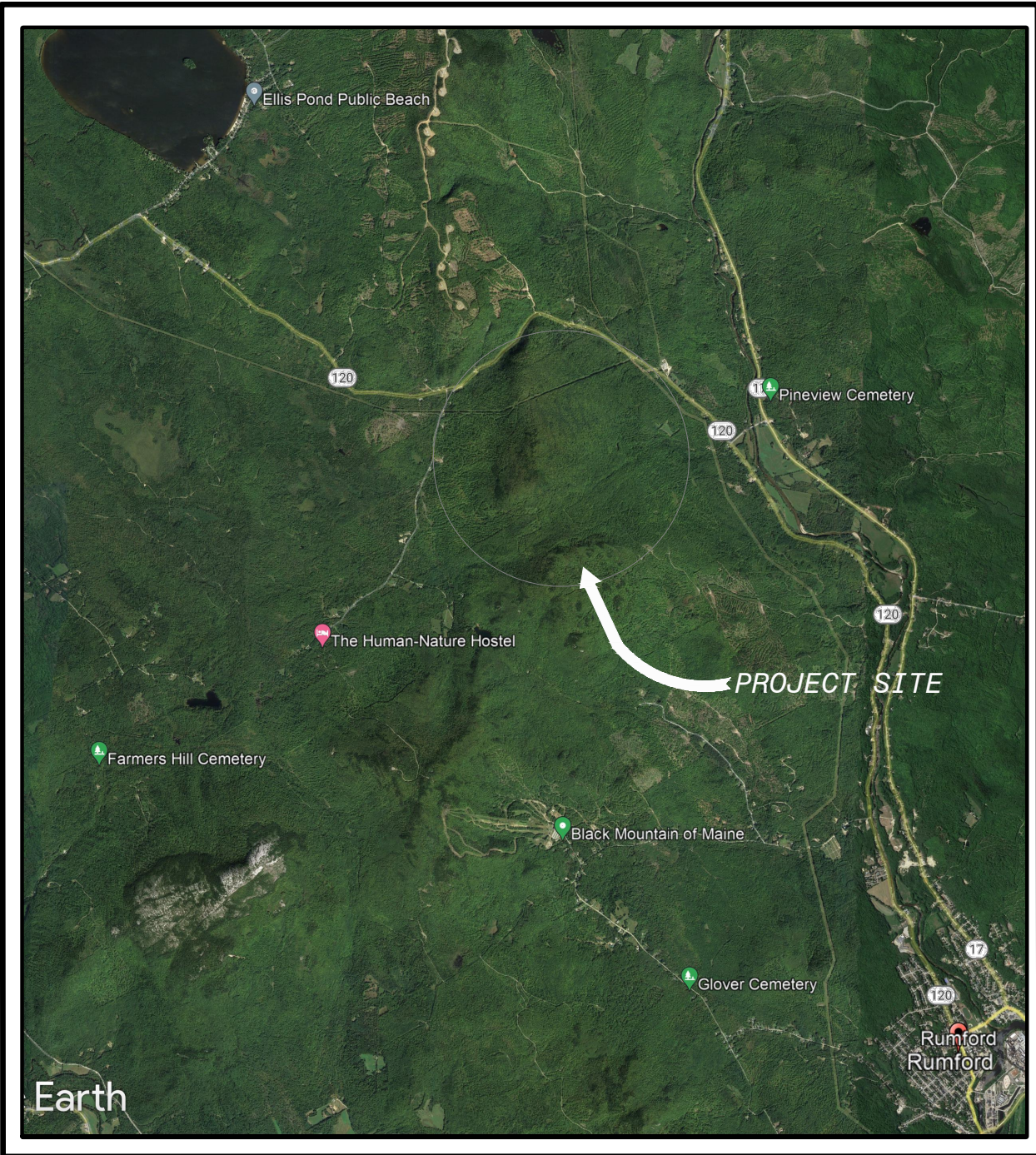
NOVEMBER 3, 2023



LOCUS MAP

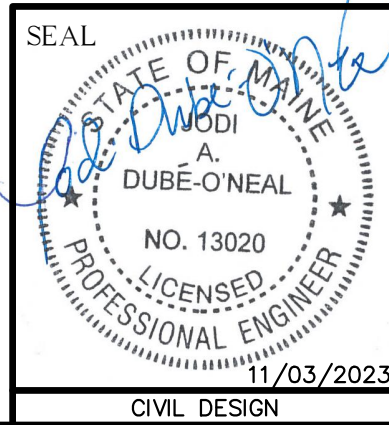
SHEET INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
	COVER
1	SITE INDEX
2 - 6	DETAILS
7 - 11	SITE GRADING PLAN
12	OVERHEAD TRANSMISSION LINE AND SCADA BUILDING PLAN
13	EROSION AND SEDIMENTATION CONTROL PLAN
14	EROSION AND SEDIMENTATION CONTROL PLAN AND NOTES
15 - 16	PRE-DEVELOPMENT DRAINAGE PLAN
17 - 18	POST-DEVELOPMENT DRAINAGE PLAN



VICINITY MAP

DESIGN TEAM:



CIVIL DESIGN

GENERAL NOTES & CONSTRUCTION SPECIFICATIONS

- EVERY WEEK AND AFTER PRECIPITATION PRODUCING THE EQUIVALENT OF ONE-HALF INCH OF RAINFALL, THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, REMOVAL OF SEDIMENT FROM SILT FENCES IF SOIL ACCUMULATES TO A DEPTH OF ONE-HALF THE FABRIC HEIGHT AND REMOVAL OF EXCESS ACCUMULATED SEDIMENT FROM DETENTION BASINS (IF APPLICABLE).
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST VERSION OF THE "MAINE EROSION & SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS" BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MEASURES, INCLUDING MATERIALS, CONSTRUCTION, MAINTENANCE AND REMOVAL.
- SEE DETAILS FOR SLOPE STABILIZATION OPTIONS.
- CONTRACTOR SHALL ADJUST CULVERT INVERT ELEVATIONS AND DITCHLINE AS NECESSARY TO PROVIDE APPROPRIATE COVER AND POSITIVE DRAINAGE.

SPECIFIC MAINTENANCE INSTRUCTIONS:

- STRAW/HAY BALE BARRIERS, SILT FENCE, FILTER BARRIERS – MAKE ANY REQUIRED REPAIRS IMMEDIATELY. REPLACE W/ TEMPORARY CHECK DAM IF THERE IS UNDERCUTTING AT CENTER OR EDGES, OR IF LARGE VOLUMES OF WATER ARE IMPOUNDED. REPLACE DECOMPOSED OR INEFFECTIVE FABRIC IMMEDIATELY. REMOVE SEDIMENT DEPOSITS AFTER EACH STORM. DEPOSITS REMAINING IN PLACE AFTER SILT FENCE OR FILTER FABRIC IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM W/ EXISTING GRADE, PREPARED AND STABILIZED.
- CULVERTS – CULVERTS SHOULD BE CHECKED MONTHLY FOR ACCUMULATION OF DEBRIS. IF NEEDED THEY SHOULD BE CLEANED.
- A STORMWATER MAINTENANCE LOG SHOULD BE MAINTAINED TO DOCUMENT COMPLIANCE WITH THE SUGGESTED SCHEDULE.

SEEDING NOTES:

TEMPORARY SEEDING NOTES

- ANY DISTURBED AREAS TO BE LEFT IN ROUGH GRADED FORM FOR MORE THAN 30 DAYS (7 DAYS FOR SENSITIVE AND CRITICAL AREAS) BUT LESS THAN ONE GROWING SEASON SHALL BE LIMED, FERTILIZED, TEMPORARILY SEEDED AND MULCHED OR OTHERWISE STABILIZED.
- EXPOSED OR BARE SOIL IN SENSITIVE AND CRITICAL AREAS ARE TO BE MULCHED AT THE COMPLETION OF WORK, EACH DAY, IF SIGNIFICANT RAINFALL IS PREDICTED.
- APPLICATION RATES AND MATERIALS USED SHALL BE THE SAME AS FOR PERMANENT SEEDING EXCEPT SEED MIXTURE SHALL BE ANNUAL RYEGRASS.

PERMANENT SEEDING NOTES

- DURING PERIODS FROM APRIL 15 TO SEPTEMBER 15, AREAS DISTURBED SHALL BE PERMANENTLY SEEDED WITH CONSERVATION SEED MIX (A MIXTURE OF CREEPING RED FESCUE, REDTOP, TALL FESCUE, CLOVER AND ANNUAL RYE), AT A RATE OF 1.0 LB/1,000 SF.
- PERMANENT SEEDING AND MULCHING PLAN – THE FOLLOWING GENERAL PRACTICES WILL BE USED TO RE-ESTABLISH FINAL VEGETATION.
 - IN AREAS NOT STABILIZED WITH ECM, LOAM OR RECLAIMED TOPSOIL WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND A NATURAL APPEARANCE.
 - FINAL SEEDING SHALL BE COMPLETED IMMEDIATELY (WITHIN 7 DAYS) FOLLOWING ANY NECESSARY GRADING. ALL FINAL FERTILIZING AND SEEDING SHALL ADHERE TO THESE SPECIFICATIONS.
 - AREAS NOT STABILIZED WITH ECM SHALL BE MULCHED IMMEDIATELY AFTER SEEDING. IMMEDIATELY UPON FIRST SIGNS OF ANY EVIDENCE OF SIGNIFICANT EROSION OCCURRING, THE CONTRACTOR SHALL REPAIR AND MULCH ALL SUCH AREAS UNTIL THE AREA IS STABILIZED. MULCHING SHALL CONSIST OF HAY MULCH, HYDRO-MULCH, OR ANY SUITABLE SUBSTITUTE. MULCHING SHALL BE MONITORED ACCORDING TO THE MONITORING SCHEDULE. SHOULD MULCHING PROVE TO BE INEFFECTIVE, NETTING OR MATTING SHALL BE USED IN ITS PLACE.
 - STRAW MULCH OR HAY SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE (90 POUNDS OR 2 BALES/1,000 SQUARE FEET) UNLESS OTHERWISE SPECIFIED.
 - HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF TACKIFIER, WOOD FIBER OR PAPER FIBER AND WATER SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED DURING THE FALL, WINTER, OR MUD SEASON.
 - DORMANT SEEDING, BETWEEN FIRST FROST AND SNOWFALL, WILL BE APPLIED AT TWICE THE STANDARD RATE AND HEAVILY MULCHED.

CONSTRUCTION SEQUENCE & PHASING NOTES

CLEARING OF VEGETATION AND STOCKPILING OF TOPSOIL

- INSTALL EROSION CONTROL MEASURES PRIOR TO SOIL DISTURBANCE.
- FLAG & MARK CLEARING LIMITS OF ACCESS ROADS, CRANE PATHS, & COLLECTION LINES, WITH THE OTHER CONSTRUCTION AREAS TO FOLLOW.
- STUMPS TO BE REMOVED FROM LOCATIONS WHERE STRUCTURES (I.e., ROADS, TURBINES, SUBSTATION, O&M BUILDING, STORMWATER MANAGEMENT SYSTEMS, ETC.) ARE TO BE INSTALLED/CONSTRUCTED. STUMPS TO BE BURIED IN PLACE OR GROUND ON-SITE AND USED AS AN EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURE BY THE CONTRACTOR.
- CLEARING AND TEMPORARY EARTHWORK WILL BE PERMITTED BEYOND CLEARING/EARTHWORK LIMITS SHOWN ON THE DESIGN TO PROVIDE APPROPRIATE COMPONENT DELIVERY CLEARANCES. CONTRACTOR SHALL MINIMIZE DISTURBANCE OUTSIDE FLAGGED CLEARING LIMITS TO SMALLEST EXTENT PRACTICABLE AND SHALL AVOID PROTECTED NATURAL RESOURCES, UNLESS OTHERWISE NOTED.
- LOW GROWING VEGETATION TO REMAIN, WHERE FEASIBLE, TO PROVIDE SOIL STABILITY.
- EXISTING TOPSOIL IN AREAS OF DEVELOPMENT TO BE STOCKPILED ON-SITE FOR USE IN FINAL STABILIZATION OF TURBINE CLEARINGS, LAY DOWN AREAS, ETC.
- MULTIPLE LAYERS OF SEDIMENTATION PROTECTION SHALL BE INSTALLED AROUND TOPSOIL STOCKPILES TO PROTECT DOWN STREAM RESOURCES.

CONSTRUCTION OF ACCESS ROADS, CRANE PATHS, & LAY DOWN/STAGING AREAS

- MINOR GRADING CHANGES INCLUDING VERTICAL AND HORIZONTAL ADJUSTMENTS MAY BE NECESSARY, DEPENDING ON FIELD CONDITIONS. CONTRACTOR MAY MAKE HORIZONTAL AND VERTICAL ADJUSTMENTS TO ROADWAY ALIGNMENT IN ORDER TO OPTIMIZE EARTHWORK BALANCING. THESE MODIFICATIONS SHALL NOT INCREASE THE TOTAL PROJECT FOOTPRINT OR INTENT OF STORMWATER DRAINAGE DESIGN. IN ADDITION, THESE MODIFICATIONS SHALL IN NO WAY HINDER DELIVERY OF COMPONENTS OR CONSTRUCTIBILITY OF PROJECT IN GENERAL. CONTRACTOR SHALL RECORD ALL MODIFICATIONS FOR INCLUSION IN PROJECT AS-BUILT DRAWINGS.
- MINOR ADJUSTMENTS TO ROADWAY GRADES AND CULVERT ELEVATIONS MAY BE MADE TO ENSURE PROPER COVER OVER CULVERTS AND TO PROVIDE PROPER DRAINAGE. CLEARING AND MINOR EARTHWORK OUTSIDE DEPICTED CLEARING/GRADING LIMITS MAY BE REQUIRED BUT WILL NOT IMPACT PROTECTED RESOURCES.
- CONSTRUCTION OF ACCESS ROADS, CRANE PATHS, & LAY DOWN/STAGING AREAS WILL OCCUR IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL AT ANY ONE TIME (INCLUSIVE OF ANY OTHER EXPOSED SOIL AREAS WITHIN THE DESIGNATED LIMITS OF DISTURBANCE).
- ACCESS SHALL BE MAINTAINED TO EXISTING ROADS BISECTED BY PROPOSED PROJECT ROADS, PER LANDOWNER REQUIREMENTS. CLEARING AND EARTHWORK NECESSARY TO MAINTAIN ACCESS WILL BE PERMITTED BEYOND DEPICTED CLEARING AND EARTHWORK LIMITS SHOWN ON THIS DESIGN BUT WILL AVOID PROTECTED NATURAL RESOURCES.

CONSTRUCTION OF RIDGELINE COLLECTOR

- EARTHWORK (SUCH AS BENCHING) MAY BE REQUIRED FOR CONSTRUCTION OF COLLECTOR LINE FOR THE PURPOSE OF STABILIZING CONSTRUCTION EQUIPMENT AND GAINING ACCESS TO COLLECTOR STRUCTURES. APPROPRIATE EARTHWORK BMP'S WILL BE UTILIZED DURING THESE ACTIVITIES AND AREAS WILL BE ALLOWED TO REVEGETATE UPON COMPLETION OF CONSTRUCTION.
- CLEARING BEYOND DEPICTED CLEARING LIMITS MAY BE REQUIRED FOR INSTALLATION OF GUY ANCHORS AND REMOVAL OF DANGER TREES.

CONSTRUCTION OF PERMANENT STORMWATER MANAGEMENT SYSTEMS

- GRADING TO BE CONDUCTED IN ACCORDANCE WITH PERMITTED PERMANENT STORMWATER MANAGEMENT DESIGN.
- ONCE FINAL GRADES ARE ACHIEVED, EXPOSED SOIL SURROUNDING THE STORMWATER MANAGEMENT STRUCTURES TO BE PERMANENTLY STABILIZED.
- FINAL LOCATIONS OF STORMWATER STRUCTURES SHALL BE FIELD DETERMINED BASED UPON EXISTING TOPOGRAPHY BUT SHALL GENERALLY MEET THE INTENT OF THE STORMWATER DESIGN PLANS. CLEARING WILL BE PERMITTED BEYOND CLEARING LIMITS SHOWN ON THIS DESIGN TO ALLOW CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS (SUCH AS LEVEL SPREADERS, DITCH TURNOUTS, ETC.). WHILE CONSTRUCTING STORMWATER MANAGEMENT SYSTEMS, CONTRACTOR SHALL MINIMIZE DISTURBANCE OUTSIDE FLAGGED CLEARING LIMITS TO SMALLEST EXTENT PRACTICABLE AND SHALL AVOID PROTECTED NATURAL RESOURCES.

CONSTRUCTION OF CRANE PADS

- AFTER THE SUBGRADE IS ESTABLISHED, CRANE PAD TO BE CONSTRUCTED WITH APPROPRIATE AGGREGATE MATERIAL SPREAD & COMPACTED OVER A GEOTEXTILE LINER AS NECESSARY; MINOR GRADE ADJUSTMENTS MAY BE NEEDED DEPENDENT ON FIELD CONDITIONS.
- CRANE PADS MAY BE ORIENTATED WITHIN TURBINE PADS AS DETERMINED BY FIELD CONDITIONS AND CONTRACTOR MEANS & METHODS.
- CRANE PADS TO REMAIN IN PLACE FOR FUTURE MAINTENANCE & OPERATION.
- EXPOSED SOIL SURROUNDING CRANE PADS & TURBINE FOUNDATIONS TO BE STABILIZED. (SEE DETAIL)

CLEAN-UP & FINAL STABILIZATION

- UPON COMPLETION OF CONSTRUCTION ACTIVITIES, ALL WORK AREAS TO BE CLEARED OF CONSTRUCTION DEBRIS & OTHER MATERIALS.
- SPECIFIC CLEAN-UP REQUIREMENTS TO INVOLVE: REMOVAL OF ALL TEMPORARY WORK TRAILERS; REMOVAL OF MATERIAL & EQUIPMENT; DISPOSAL OF ALL RUBBISH RESULTING FROM CLEARING, CONSTRUCTION, & INSTALLATION; ROUGH GRADING & STABILIZATION OF EMBANKMENTS MADE FOR CONSTRUCTION PURPOSES; FILLING OF ANY EXCAVATIONS; & REPAIRING RUTS IN ACCESS ROADS.
- FINAL STABILIZATION OF ALL AREAS OF DISTURBED SOIL, WHERE FINAL GRADE HAS BEEN ACHIEVED, WILL INVOLVE RESPREADING OF STOCKPILED TOPSOIL MATERIAL & SEEDING, MULCHING WITH WOODWASTE MULCH, OR APPLICATION OF OTHER APPROVED STABILIZATION METHODS. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE PROJECTS PERMITS AND PLANS.
- LAYDOWN AREAS SHALL BE ALLOWED TO REVEGETATE WITHIN ONE YEAR. CONTRACTOR SHALL REGRADE AS NECESSARY TO AVOID CONCENTRATED FLOWS.

TURBINE FOUNDATIONS

- ELEVATIONS OF TURBINE FOUNDATIONS ARE BASED ON LIDAR DATA. FINAL ELEVATIONS OF FOUNDATIONS MAY BE ADJUSTED IN FIELD TO ACCOMMODATE ACTUAL TERRAIN CONDITIONS AND TO REDUCE IMPACTS. ALL ADJUSTMENTS SHALL BE APPROVED BY OWNER PRIOR TO IMPLEMENTATION.
- FOUNDATION DRAIN MAY BE REQUIRED AT FOUNDATIONS AS SPECIFIED BY FOUNDATION CONSTRUCTION PLANS.

WINTER CONSTRUCTION NOTES

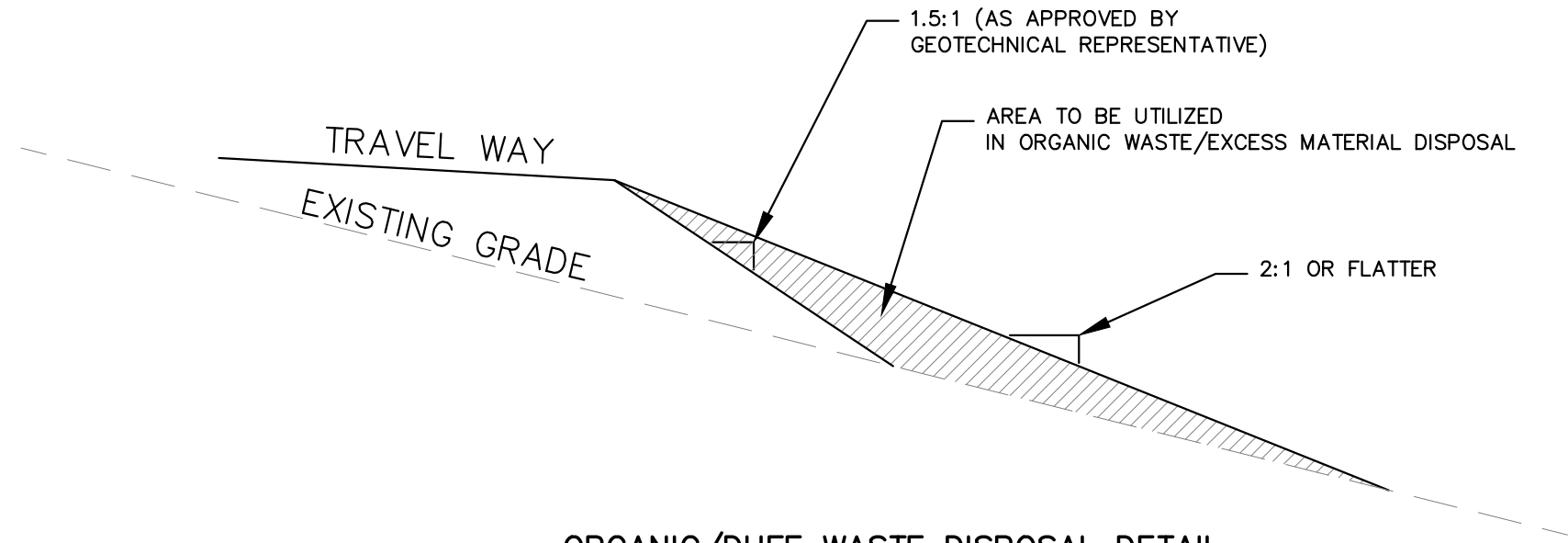
- THE WINTER CONSTRUCTION PERIOD SHALL BE FROM NOVEMBER 1 THROUGH APRIL 15.
- WHERE FEASIBLE, A MINIMUM 25-FT BUFFER SHALL BE MAINTAINED BETWEEN SILT FENCE OR OTHER PERIMETER CONTROLS AND ROADS TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.
- DRAINAGE STRUCTURES SHALL BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
- ACCEPTABLE OVER-WINTER STABILIZATION SHALL CONSIST OF VEGETATION (MIN. 75% MATURE) MULCHING, EROSION CONTROL MIX, RIPRAP OR GRAVEL ROAD BASE.
- EROSION PREVENTION AND SEDIMENT CONTROL MEASURES THAT REQUIRE EARTH DISTURBANCE (E.G., CONSTRUCTION FENCE AND SILT FENCE) SHALL BE INSTALLED PRIOR TO THE GROUND FREEZING. DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS.
- FROM NOVEMBER 1 TO APRIL 15, MULCH SHALL BE INSTALLED AT DOUBLE THE NORMAL RATE. NETTING OR OTHER MEANS APPROVED BY THE ENGINEER SHALL BE USED TO MINIMIZE WIND EROSION OF MULCHING.
- PRIOR TO STABILIZATION, ICE AND SNOW SHALL BE REMOVED TO LESS THAN 1-IN.
- EXCAVATED FROZEN SOILS SHALL BE STOCKPILED IN LEVEL AREAS AND SHALL NOT BE USED UNTIL THAWED. SEE STOCKPILING NOTES.
- EXCAVATION OF SOILS IN SHALLOW GROUNDWATER AREAS SHALL BE MINIMIZED IF AT ALL POSSIBLE DURING WINTER, AND LIMITED TO ONLY THOSE AREAS THAT CAN BE STABILIZED DURING THE SAME DAY.
- TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
 - IF NO PRECIPITATION OR MELTING EVENT IS FORECAST WITHIN 24 HOURS AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
 - DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS BUILDING FOUNDATIONS AND OPEN UTILITY TRENCHES.
- ENGINEER MAY MAKE NECESSARY ADJUSTMENTS TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN AND ASSOCIATED EROSION PREVENTION AND SEDIMENT CONTROL MEASURES (E.G., CONSTRUCTION FENCE AND SILT FENCE) TO ACCOMMODATE ANTICIPATED SNOW STORAGE AREAS.
- AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCE, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL COVER. DURING WINTER CONSTRUCTION A DOUBLE ROW OF SEDIMENT BARRIERS SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. NATURAL RESOURCE CROSSINGS SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE.
- STOCKPILES OF SOIL SHALL BE MULCHED FOR OVER-WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A 4-INCH LAYER OF EROSION CONTROL MIX.
- MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGES OR BARE SPOTS.
- WINTER CONSTRUCTION SHALL BE IN ACCORDANCE WITH REGULATORY PERMIT. PERMIT REQUIREMENTS SHALL SUPERCEDE ANY DISCREPANCY IN ABOVE LISTED NOTES.

DEWATERING

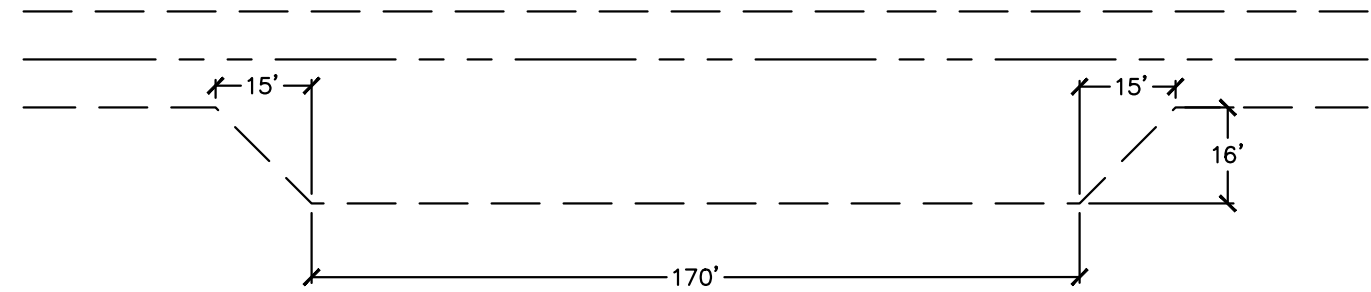
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY DEWATERING EXCAVATIONS DURING CONSTRUCTION.
- CONTRACTOR SHALL DISPOSE OF PUMPED WATER IN APPROPRIATE MANNER TO AVOID CONCENTRATED FLOWS FROM SITE. THE USE OF SETTLEMENT BASINS OR SEDIMENT CONTROL DEVICES SUCH AS "DIRTBAGS" AND TEMPORARY SEDIMENT BASINS SHALL BE EMPLOYED TO SEPARATE SEDIMENTS FROM DEWATERING ACTIVITIES AS NECESSARY. PUMPED WATER WILL BE DIRECTED AWAY FROM RESOURCES TO NATURAL BUFFER AREAS OR OTHER ACCEPTABLE STABILIZED AREAS. METHODS OF DEWATERING AND THE SEDIMENT CONTROL DEVICES SHALL BE APPROVED BY THE ENGINEER AT EACH LOCATION.
- DURING TEMPORARY DEWATERING ACTIVITIES CONTRACTOR SHALL OUTLET FLOWS TO SEDIMENT CONTROL DEVICES. THESE DEVICES SHALL BE LOCATED ON UNDISTURBED SOILS THAT ARE CAPABLE OF ALLOWING SURFACE INFILTRATION. LOCATIONS FOR ALL OUTLETS OF DEWATERING ACTIVITIES SHALL NOT BE PLACED WITHIN PROTECTED NATURAL RESOURCES.
- PERMANENT DEWATERING REQUIRED FOR FOUNDATION DRAINAGE SHALL OUTLET AS GRADES ALLOW. PERMANENT OUTLETS SHALL BE LOCATED ON UNDISTURBED SOILS THAT ARE CAPABLE OF ALLOWING SURFACE INFILTRATION OR IN NEAREST AVAILABLE ROADSIDE DITCH. PERMANENT OUTLETS LOCATED WITHIN DITCH LINES SHALL BE STABILIZED WITH RIPRAP. PERMANENT OUTLETS LOCATED IN WOODED AREAS SHALL BE STABILIZED WITH RIPRAP FOLLOWED BY A LEVEL SPREADER SO ELIMINATE CONCENTRATED FLOWS. ALL OUTLET PIPES SHALL HAVE STAINLESS STEEL RODENT SCREENS.
- IN LOCATIONS WHERE OUTLET REQUIRES THE PLACEMENT OUTSIDE THE DEPICTED CLEARING LIMITS CONTRACTOR SHALL MINIMIZE CLEARING AND DISTURBANCE TO SMALLEST EXTENT PRACTICABLE AND SHALL AVOID PROTECTED NATURAL RESOURCES.

Project No. Engineer	381.20.01	77 EXCHANGE ST SUITE 401 BANGOR, ME www.sewal.com	ENGINEERING SURVEYING The evolution of expertise	1 800 648 4202	Seawal	NO. 13020 LICENSED PROFESSIONAL ENGINEER	STATE OF MAINE DUBÉ-O'NEAL	Sheet	TWIN ENERGY LLC	RUMFORD, MAINE Project Location RUMFORD, MAINE	Designed By JAO	Date 11/03/2023	Drawn By SAW	Scale AS SHOWN	Checked BOH	Approved JAO	Drawing Description DETAILS	Date	Rev. #	Drawn By	Description	Date																					
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NOTE:
DISPOSAL AREA LOCATIONS TO BE APPROVED BY ENGINEER.

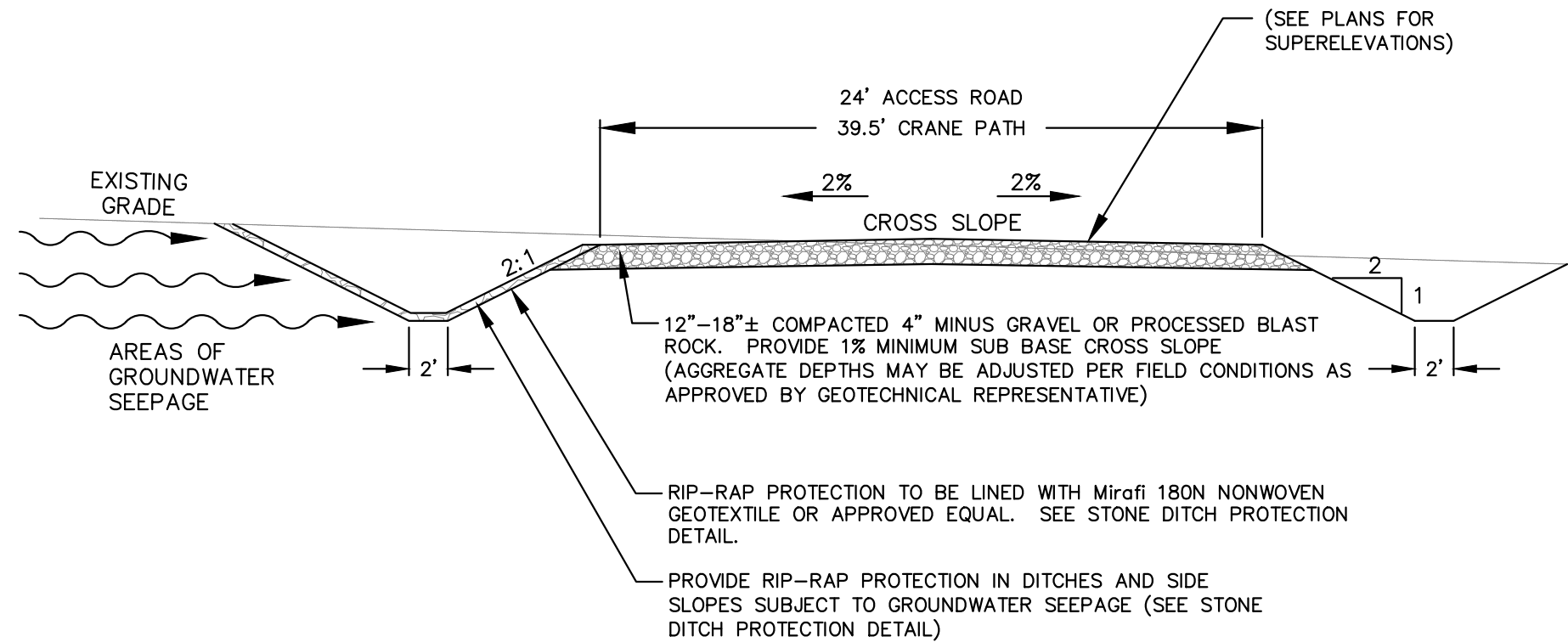


ORGANIC/DUFF WASTE DISPOSAL DETAIL
NOT TO SCALE

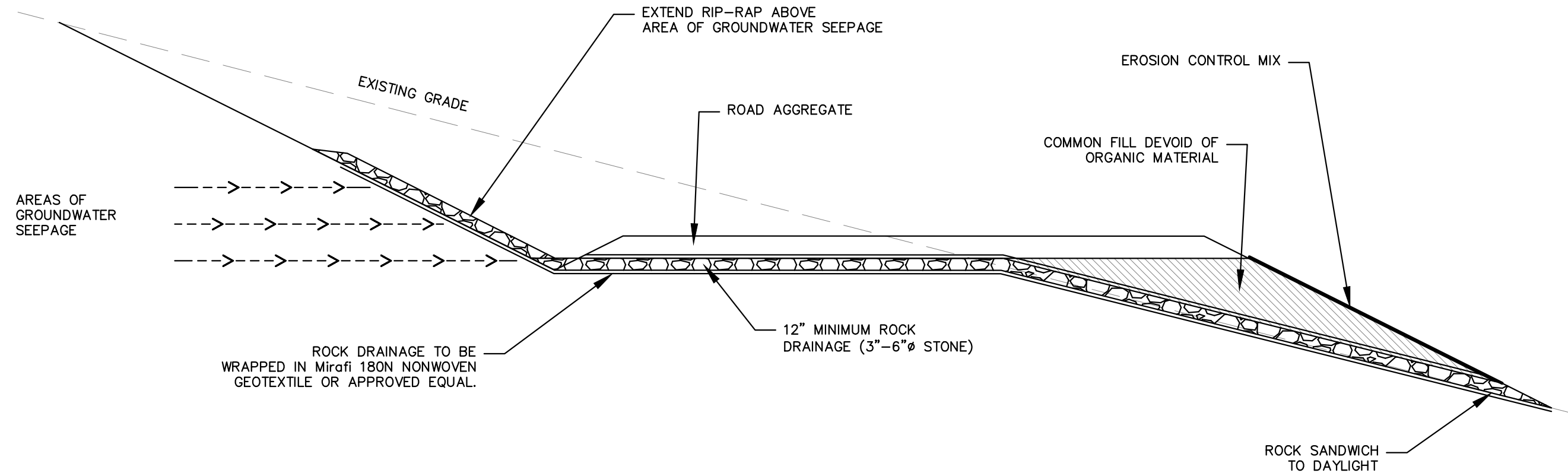


- NOTES:
1. TURNOUT LOCATIONS ALONG EXISTING ROADS SHALL BE DETERMINED DURING CONSTRUCTION AND SHALL AVOID IMPACTS TO PROTECTED NATURAL RESOURCES.
 2. ALL ROAD TURNOUTS WILL BE ALLOWED TO REVEGETATE ONCE CONSTRUCTION IS COMPLETE.

TYPICAL ROAD TURNOUT DETAIL
NOT TO SCALE

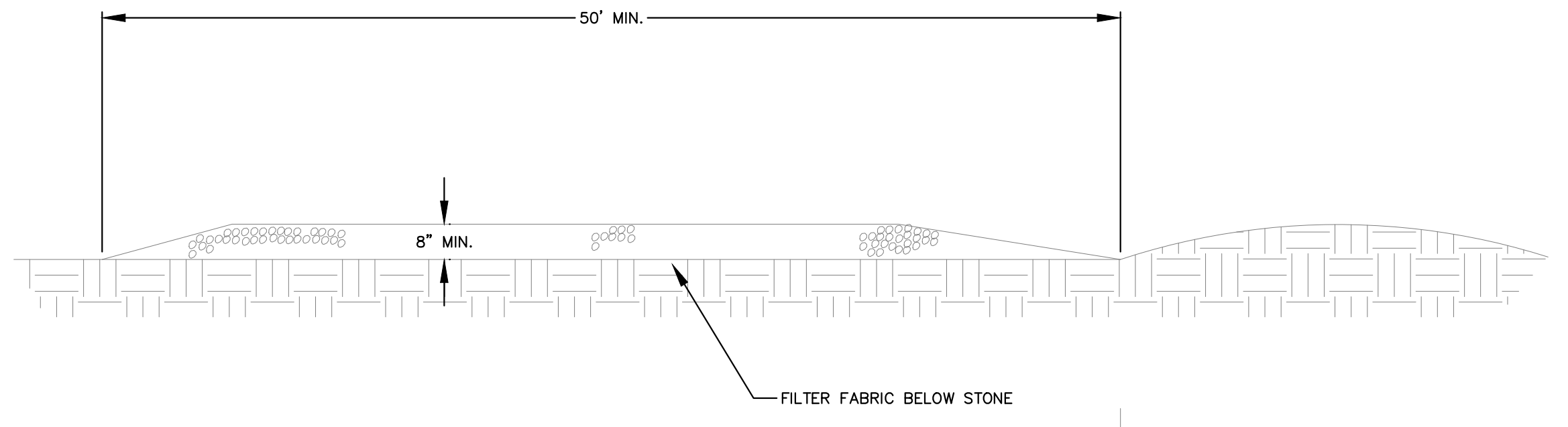


TYPICAL ROAD DETAIL IN CUT SECTION
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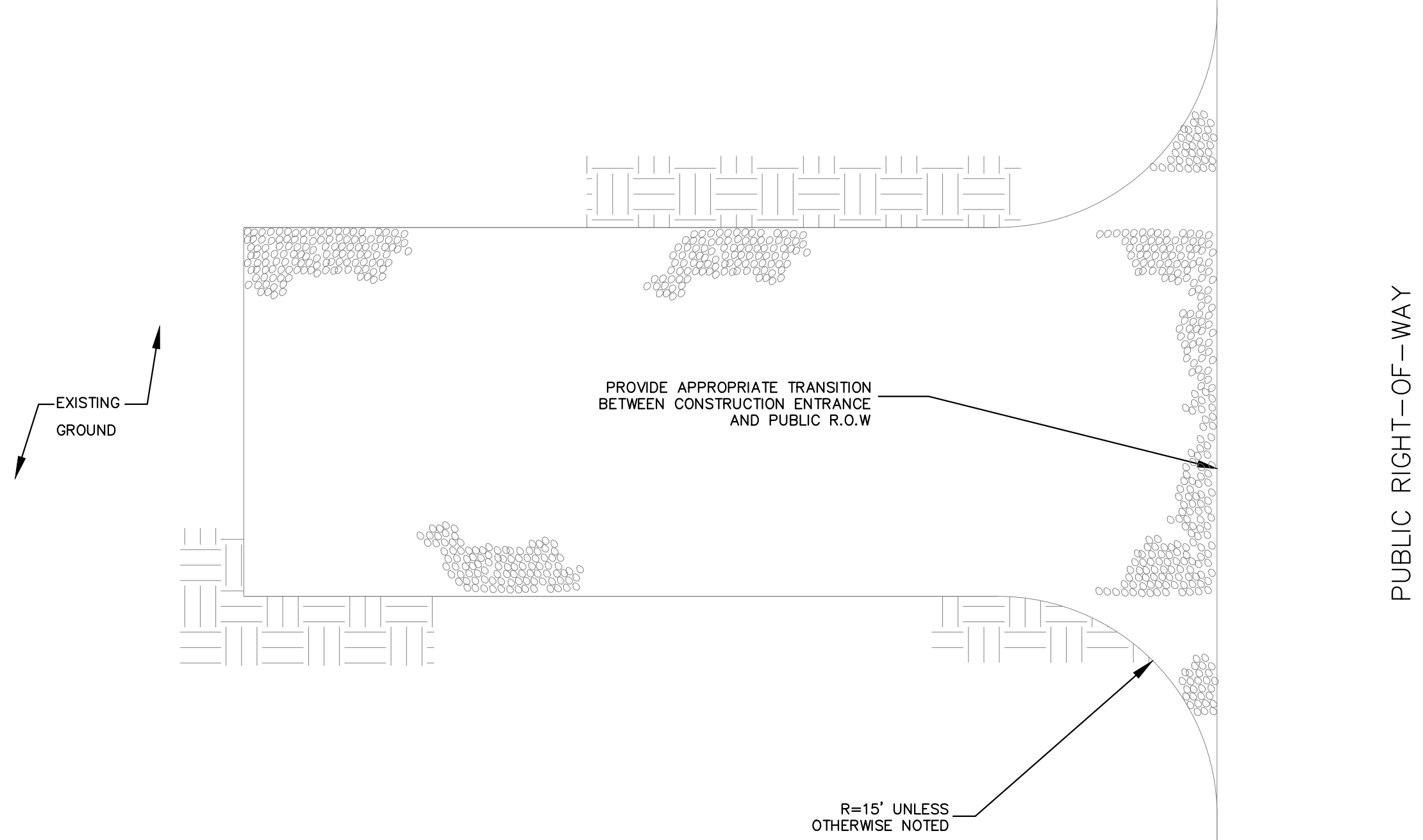


- NOTE:
1. ROCK SANDWICHES SHALL BE CONSTRUCTED WITH RELIEF CULVERTS INSTALLED PERIODICALLY. INVERT OF RELIEF CULVERT SHALL BE A MINIMUM OF 6" ABOVE THE ROCK DRAINAGE LAYER. ADJUST INLET INVERT AND ROCK SANDWICH ELEVATION AS REQUIRED TO MAINTAIN APPROPRIATE COVER OVER CULVERT.
 2. ROCK SANDWICH TYPICALLY UTILIZED IN ROADWAYS TRAVERSING AREAS WITH SHALLOW GROUNDWATER.
 3. CONTRACTOR SHALL RESTORE ROCK SANDWICH IF DISTURBED BY UNDERGROUND ELECTRICAL INSTALLATION.

TYPICAL ROCK SANDWICH DETAIL
NOT TO SCALE



PROFILE

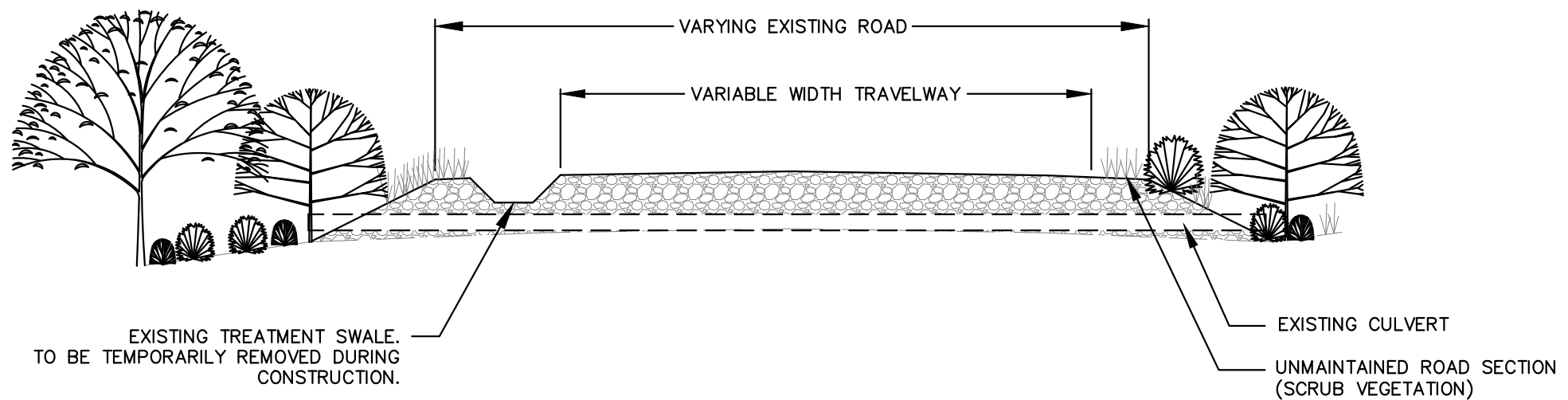


PLAN

NOTES:

1. APPROXIMATE STONE SIZE - 2"-3" CRUSHED STONE.
2. LENGTH - AS SHOWN ON GRADING PLAN, MIN. 50 FEET.
3. THICKNESS - APPROXIMATELY EIGHT (8) INCHES (MINIMUM)
4. WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



EXISTING ROXWIND ACCESS ROAD USED FOR TEMPORARY CONSTRUCTION ACCESS

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING VEGETATION WITHIN ROAD FOOTPRINT (INCLUDING DRAINAGE DITCHES AND STORMWATER TREATMENT SWALES).
2. CONTRACTOR SHALL NOT IMPACT PROTECTED NATURAL RESOURCES UNLESS OTHERWISE PERMITTED.
3. BARK MULCH BERMS OR SILT FENCE OR INLET PROTECTION SHALL BE USED DOWNSTREAM OF ANY MAINTENANCE WORK ALONG ACCESS ROADS AS NEEDED; SEE TYPICAL DETAIL.
4. ONCE CONSTRUCTION IS COMPLETE, THE TEMPORARY CONSTRUCTION MEASURES NEED TO BE RESTORED TO EXISTING CONDITIONS (INCLUDING DRAINAGE DITCHES, ROAD WIDTHS, AND STORMWATER TREATMENT SWALES).

* ADDITIONAL CLEARING FOR COMPONENT TRANSPORT MAY BE NECESSARY IN ISOLATED LOCATIONS. THIS CLEARING WILL NOT IMPACT PROTECTED RESOURCES UNLESS OTHERWISE DEPICTED.

EXISTING ROAD RECONSTRUCTION
NOT TO SCALE

Rev. #	Drawn By	Description	Date

DESIGNED BY JAO	DRAWN BY SAW	CHECKED BY JAO	DATE 11/03/2023	PROJECT LOCATION RUMFORD, MAINE	SCALE AS SHOWN	APPROVED BY JAO	DATE 11/03/2023
TWIN ENERGY LLC				RUMFORD, MAINE		DETAILS	



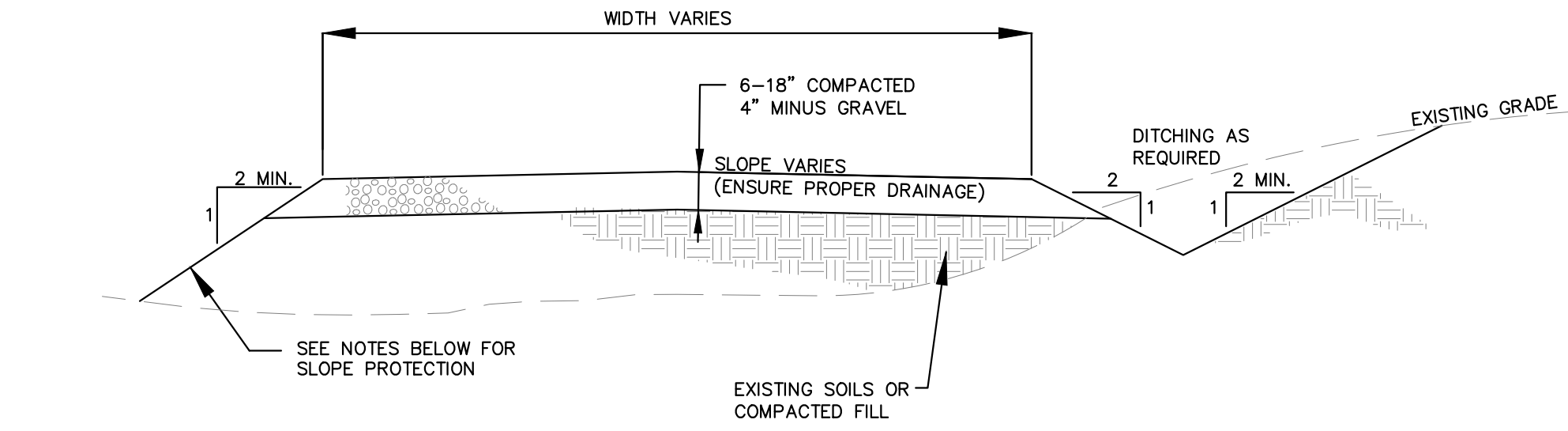
PROJECT NO. 381.20.01	ENGINEERING SURVEYING Sewal The evolution of expertise www.sewal.com	1 800 648 4202
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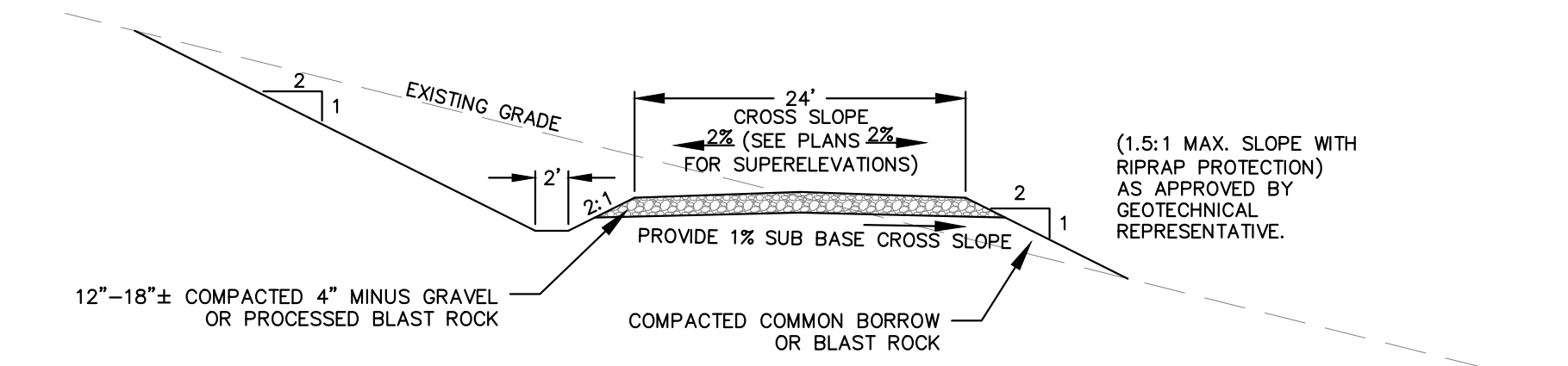
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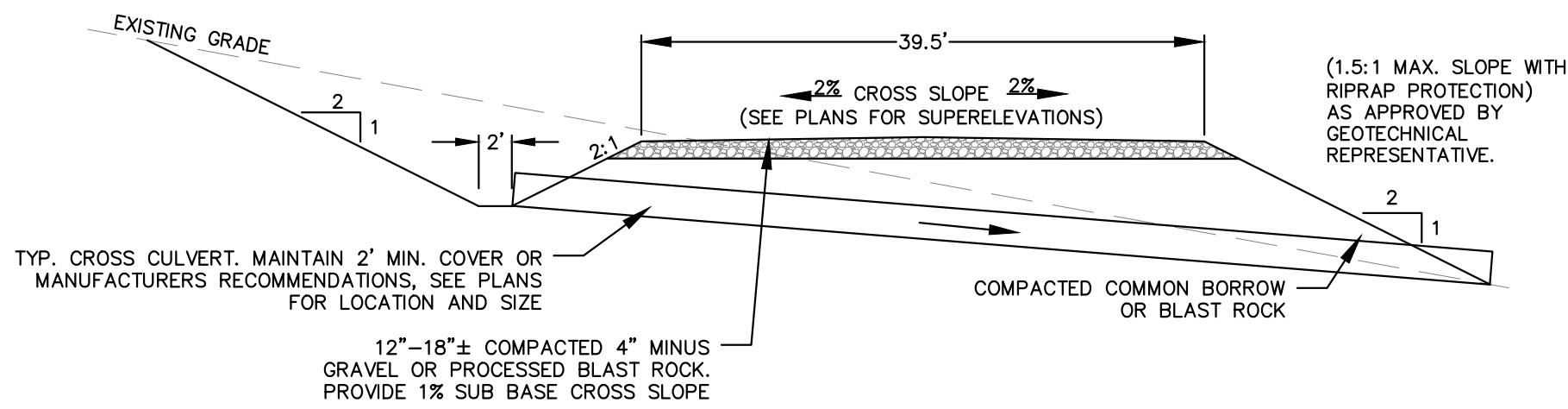
- NOTE:
1. DEPTH AND TYPE OF GRAVEL TO BE DETERMINED BASED ON SUBGRADE CONDITIONS AND AS APPROVED BY GEOTECHNICAL REPRESENTATIVE.
 2. SLOPES COMPOSED OF STONES 4" OR GREATER SHALL NOT BE COVERED WITH CAST ON LOAM & SEED.



TYPICAL TURBINE PAD



TYPICAL ACCESS ROAD



TYPICAL CRANE PATH

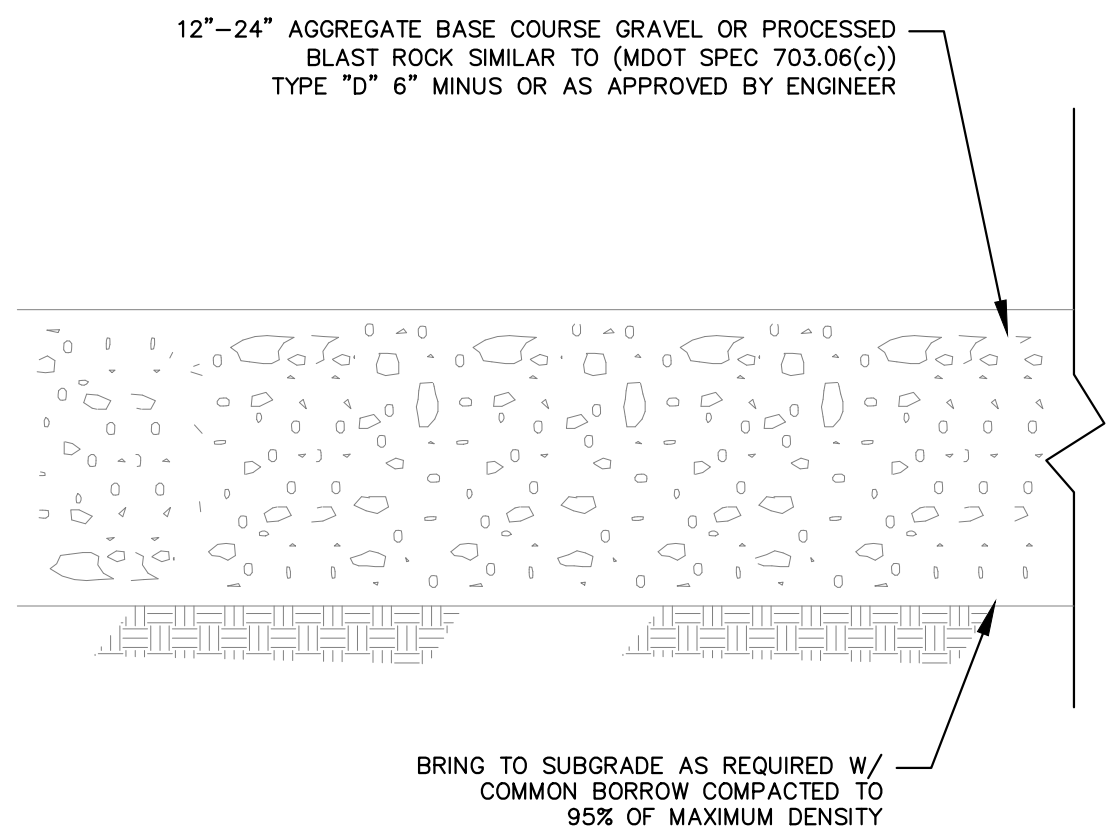
- NOTES:
1. DITCHES SHALL BE CONSTRUCTED TO AVOID GROUND WATER TABLE WHEN POSSIBLE. DITCH DEPTH SHALL BE 24" MEASURED FROM ROADWAY, EXCEPT AT CROSS CULVERTS OR AS APPROVED BY THE ENGINEER. DITCHES SHALL BE STONE LINED WHEN THE LONGITUDINAL SLOPES OF THE DITCH EXCEEDS 8%.
 2. ACTUAL AGGREGATE MATERIALS AND DEPTH SHALL BE DETERMINED IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AND PROJECT REQUIREMENTS TO ADEQUATELY SUPPORT CONSTRUCTION EQUIPMENT.

- FILL AREAS:
1. EXISTING GROUND SHALL BE GRUBBED WITHIN FOOTPRINT OF ROAD IN FILL SECTIONS. HOWEVER, WHEN EMBANKMENT FILL DEPTH EXCEEDS 5', MEASURED VERTICALLY, ALL VEGETATION SHALL BE CUT AND REMOVED BUT GRUBBING IS NOT REQUIRED.
 2. STABILIZE FILL SLOPES WITH BLAST ROCK, EROSION CONTROL MIX, OR LOAM AND SEED. ALL SLOPES STEEPER THAN 3:1 SHALL BE PROTECTED WITH EROSION CONTROL MIX, EROSION CONTROL MESH, OR BLAST ROCK/RIPRAP. SLOPES STEEPER THAN 2:1 SHALL BE PROTECTED WITH RIPRAP OR SUITABLE BLAST ROCK.
 3. BENCH EXISTING GROUND AS NECESSARY TO STABILIZE EXTENSION.

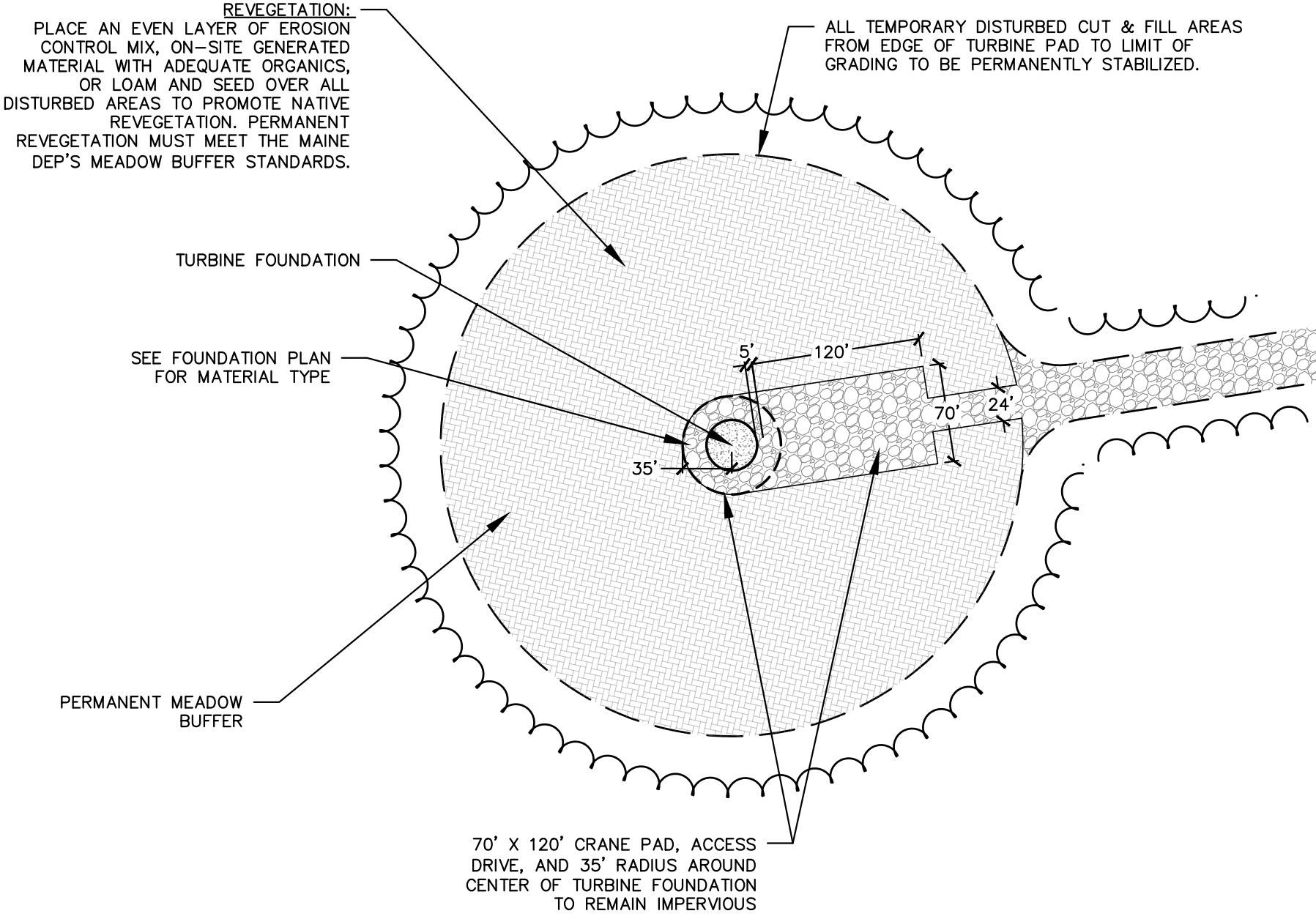
- CUT AREAS:
1. 1:4 CUT FACES ARE PERMITTED IN AREAS OF ROCK EXCAVATION ONLY AS APPROVED BY ENGINEER.
 2. ALL NON ROCK-FACE SLOPES STEEPER THAN 3:1 SHALL BE PROTECTED WITH EROSION CONTROL MIX, EROSION CONTROL MESH, OR BLAST ROCK. SLOPES STEEPER THAN 2:1 SHALL BE PROTECTED WITH BLAST ROCK OR RIP RAP.

TYPICAL TURBINE PAD AND ROAD DETAILS
NOT TO SCALE

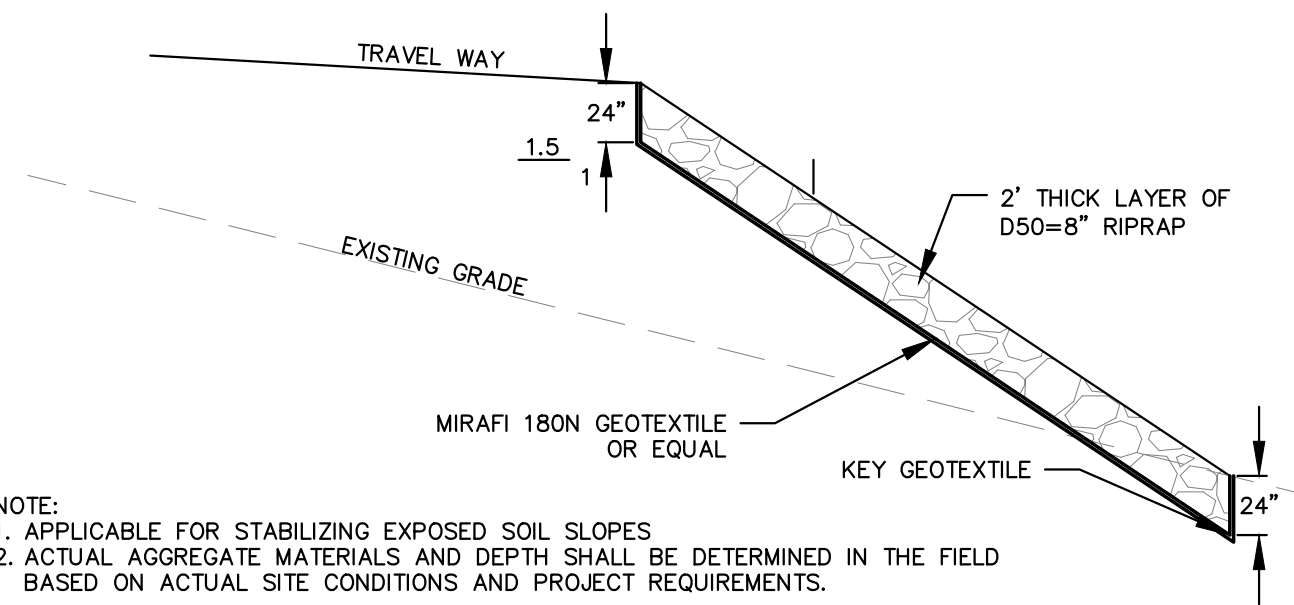
- NOTE:
1. COMPACT GRAVEL BASE COURSE TO 95% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION
 2. ALL CRANE PADS SHALL BE CONSTRUCTED WITH NO CROSS SLOPE IN ANY DIRECTION.
 3. CRANE PADS SHALL BE 70'X120' (MINIMUM). EXACT LOCATION SHALL BE DETERMINED IN THE FIELD BY GENERAL CONTRACTOR.
 4. ACTUAL AGGREGATE MATERIALS AND DEPTH SHALL BE DETERMINED IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AND REQUIREMENTS, AS APPROVED BY GEOTECHNICAL REPRESENTATIVE.



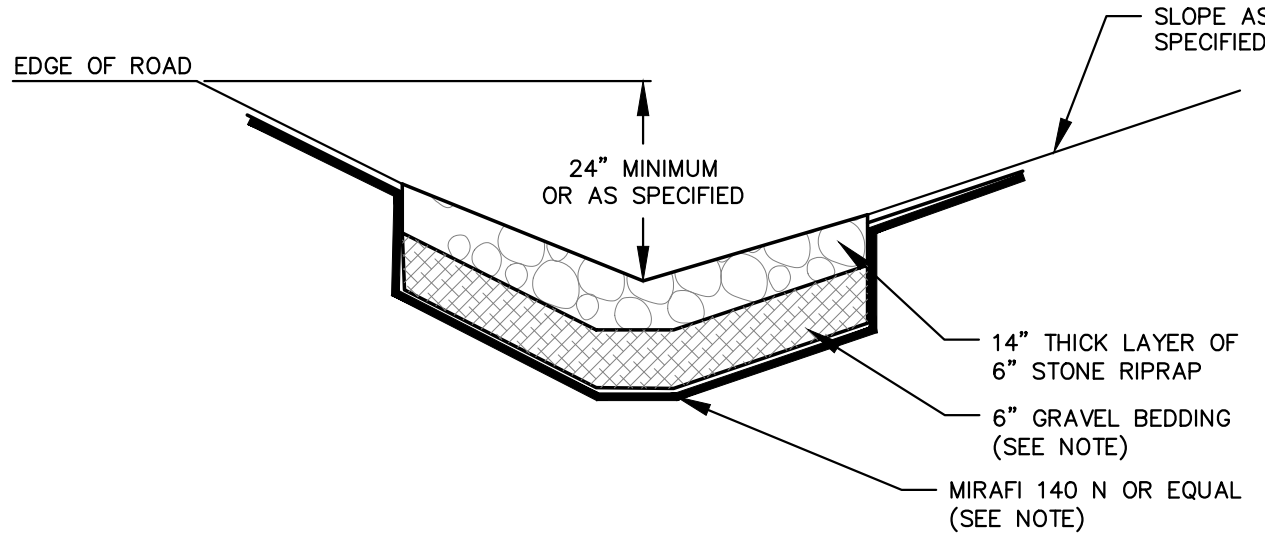
TYPICAL GRAVEL CRANE PAD SECTION
NOT TO SCALE



TYPICAL TURBINE PAD STABILIZATION DETAIL
NOT TO SCALE

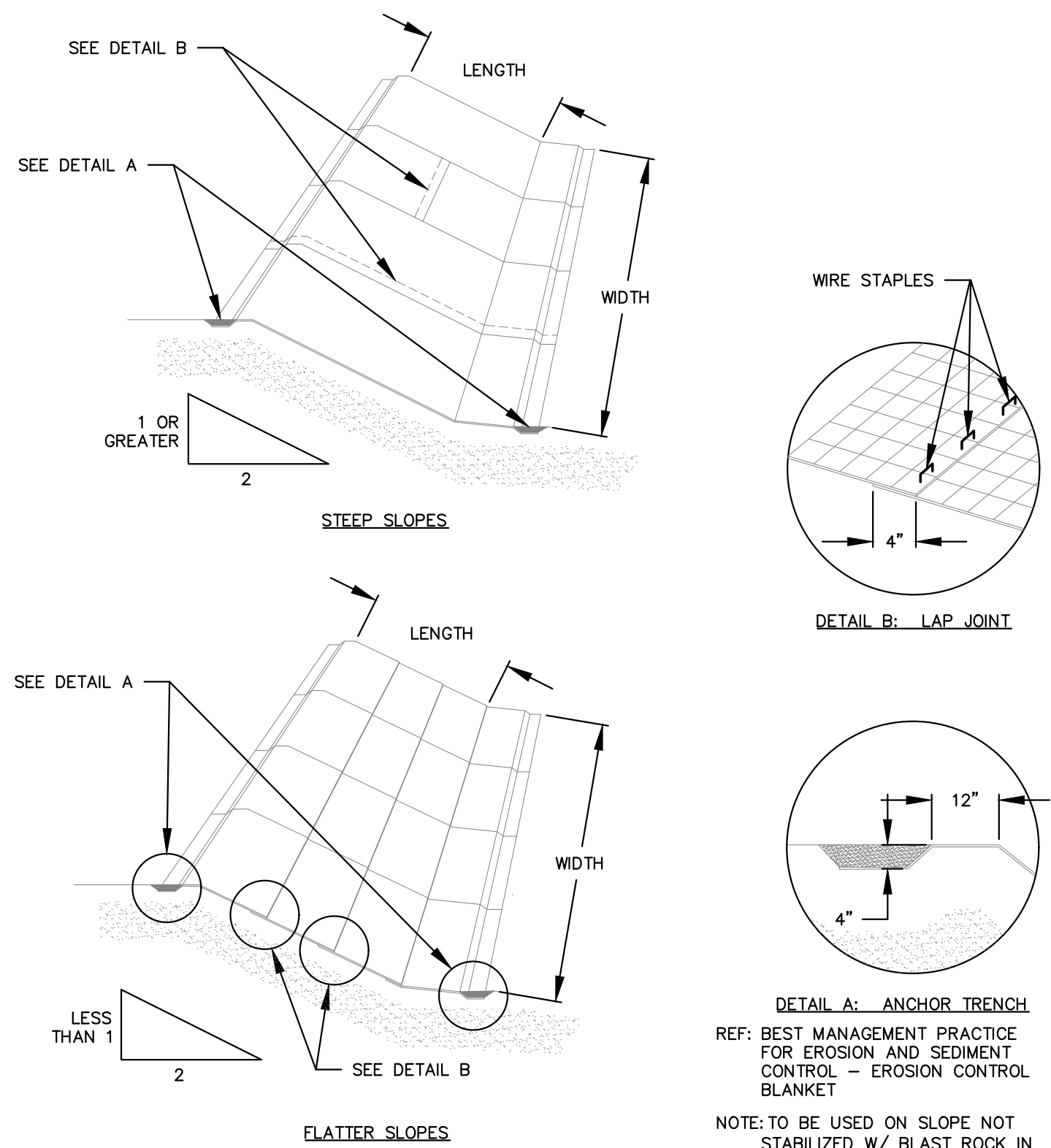


RIPRAP SLOPE PROTECTION DETAIL
NOT TO SCALE

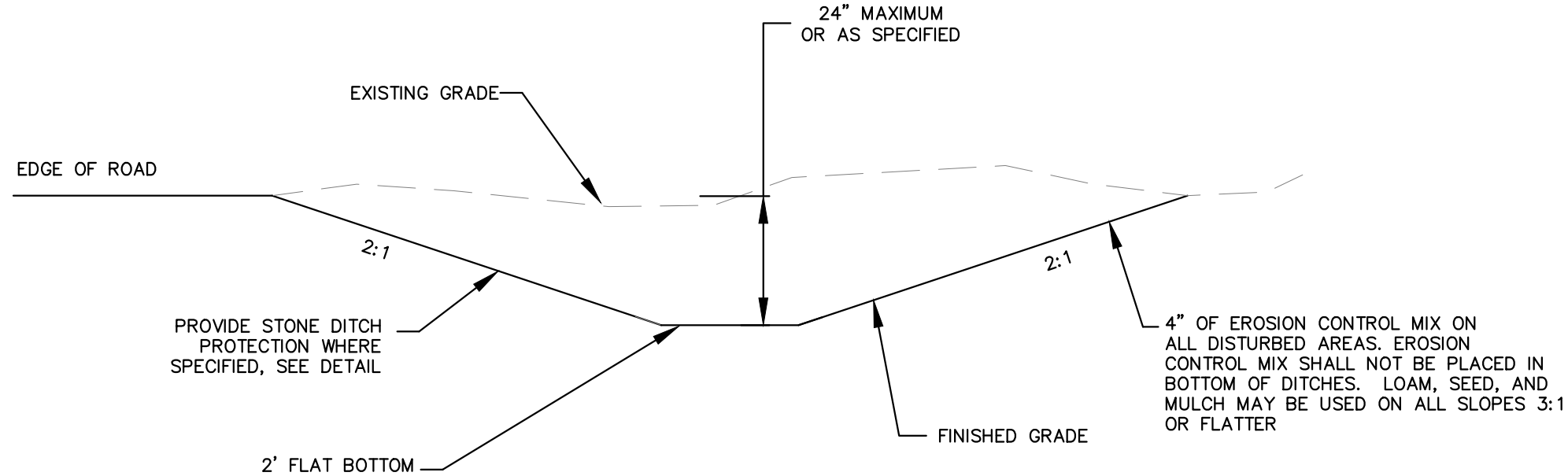


- NOTE:
1. STONE DITCH PROTECTION SHALL BE USED ON ALL DITCHES EXCEEDING 8% GRADE AND ALL DITCHES DOWN STREAM OF THESE GRADES TO THE NEAREST CULVERT, DITCH TURNOUT OR LEVEL SPREADER.
 2. 6" GRAVEL BEDDING MAY BE ELIMINATED IF MIRAFI 180N GEOTEXTILE OR EQUAL IS UTILIZED, STONE WEIGHT IS LESS THAN 230 lbs., AND DROP HEIGHT IS LESS THAN 3 FEET.
 3. GEOTEXTILE MAY BE ELIMINATED AS DETERMINED BY ENGINEER IF BASE OF DITCH IS CONSTRUCTED FROM BLAST ROCK.
 4. ALL DITCHES EXPERIENCING GROUNDWATER FLOW SHALL HAVE STONE PROTECTION.
 5. EXTEND STONE DITCH PROTECTION ON FORESLOPE AND BACKSLOPES ABOVE GROUNDWATER SEEPAGE LIMIT.

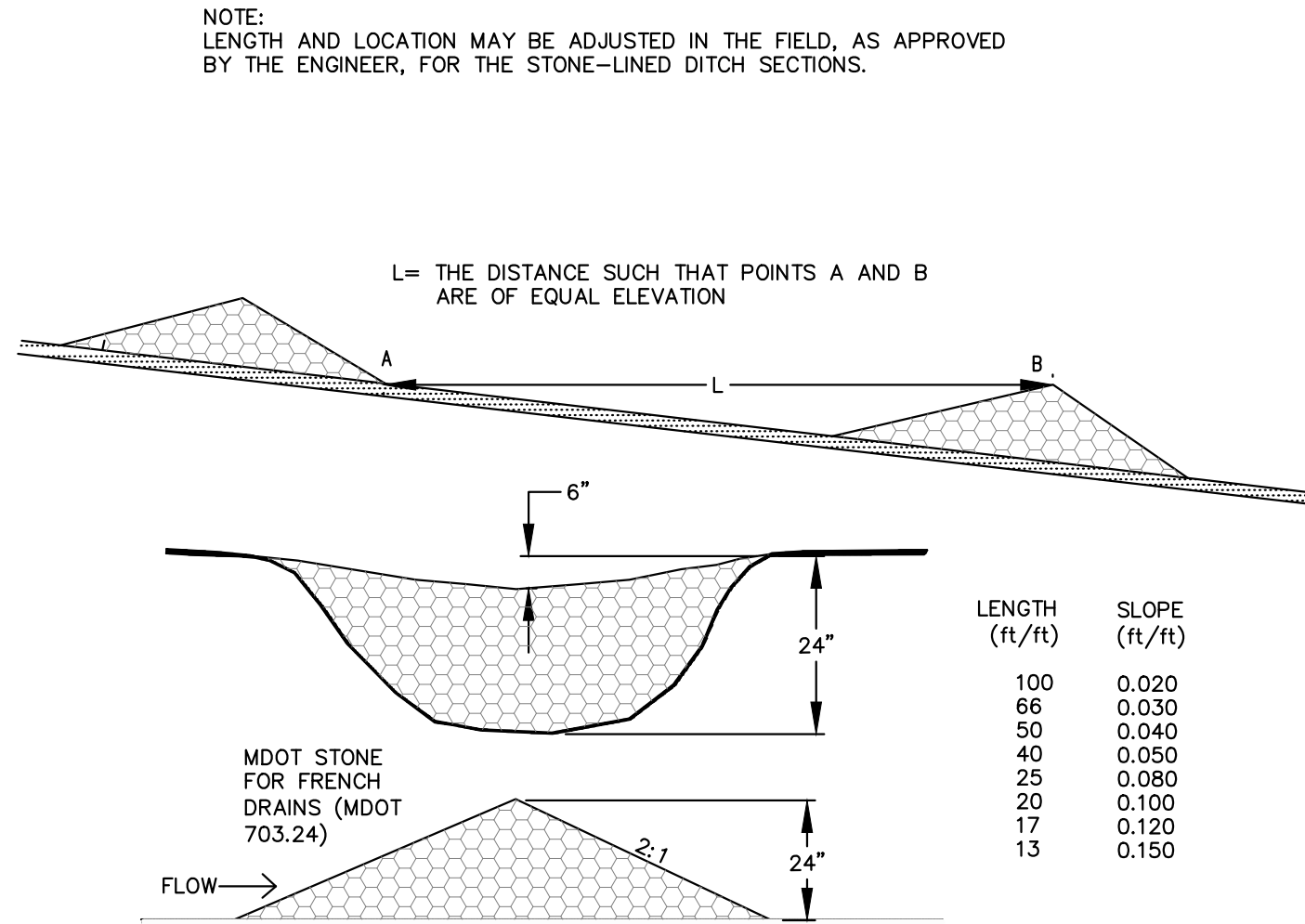
TYPICAL STONE DITCH PROTECTION DETAIL
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SLOPE APPLICATION-FOR EROSION CONTROL MESH
NOT TO SCALE



TYPICAL DITCH CROSS SECTION
NOT TO SCALE

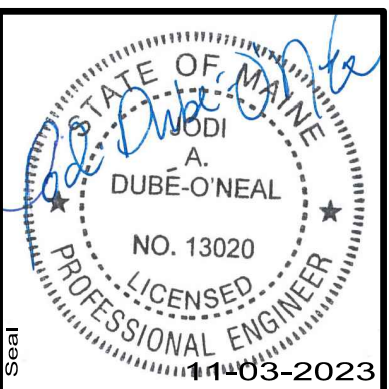


STONE CHECK DAM DETAILS
NOT TO SCALE

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Rev.	By	Desc.	Date

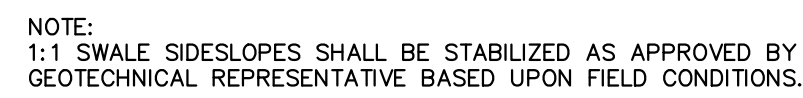
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TWIN ENERGY LLC				DETAILS	
RUMFORD, MAINE				RUMFORD, MAINE	
Project Location				Drawing Description	



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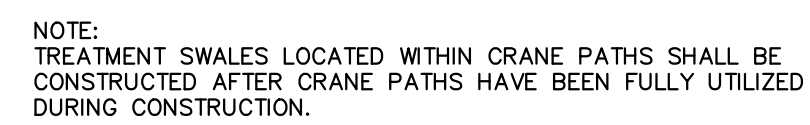
Sheet No. 4



ACCESS ROAD WIDTH 24 FEET

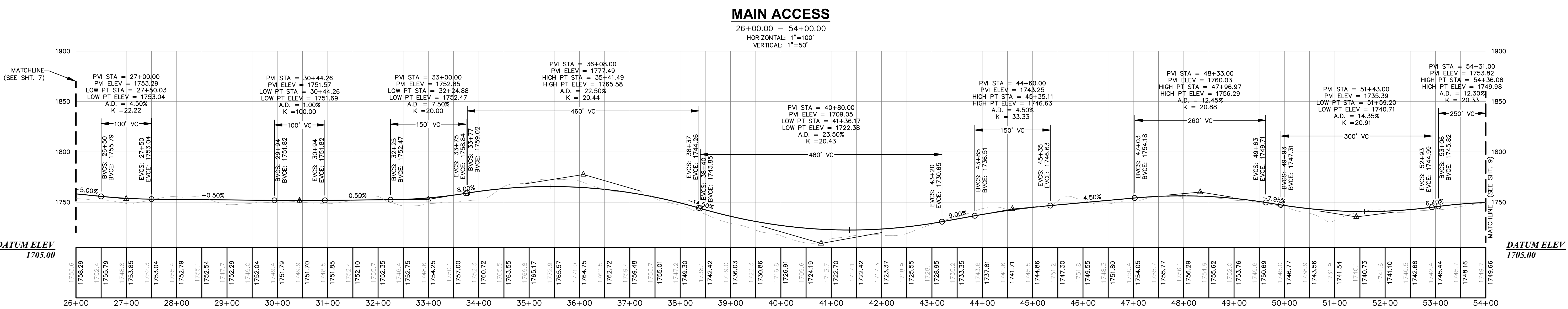
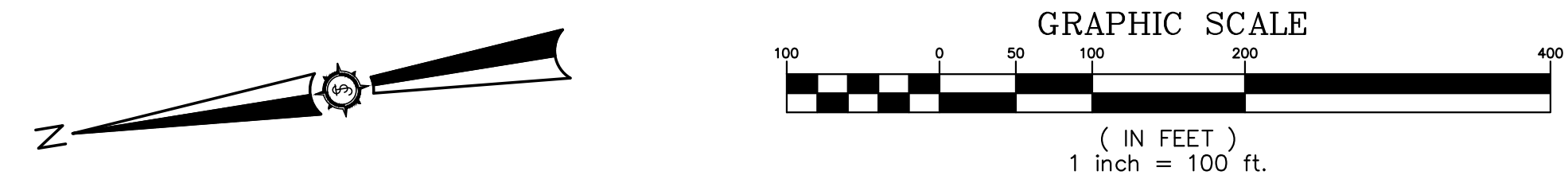
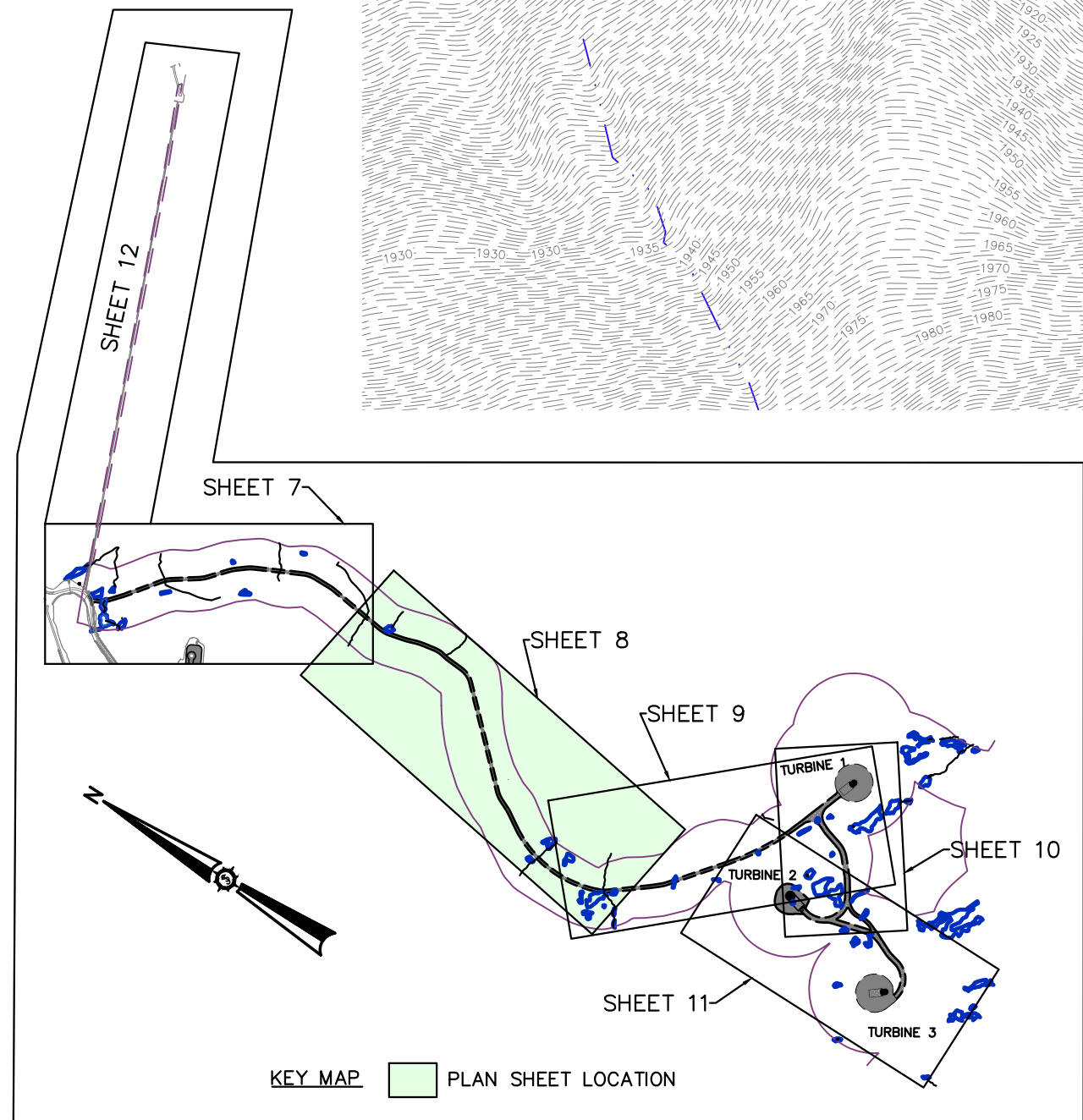
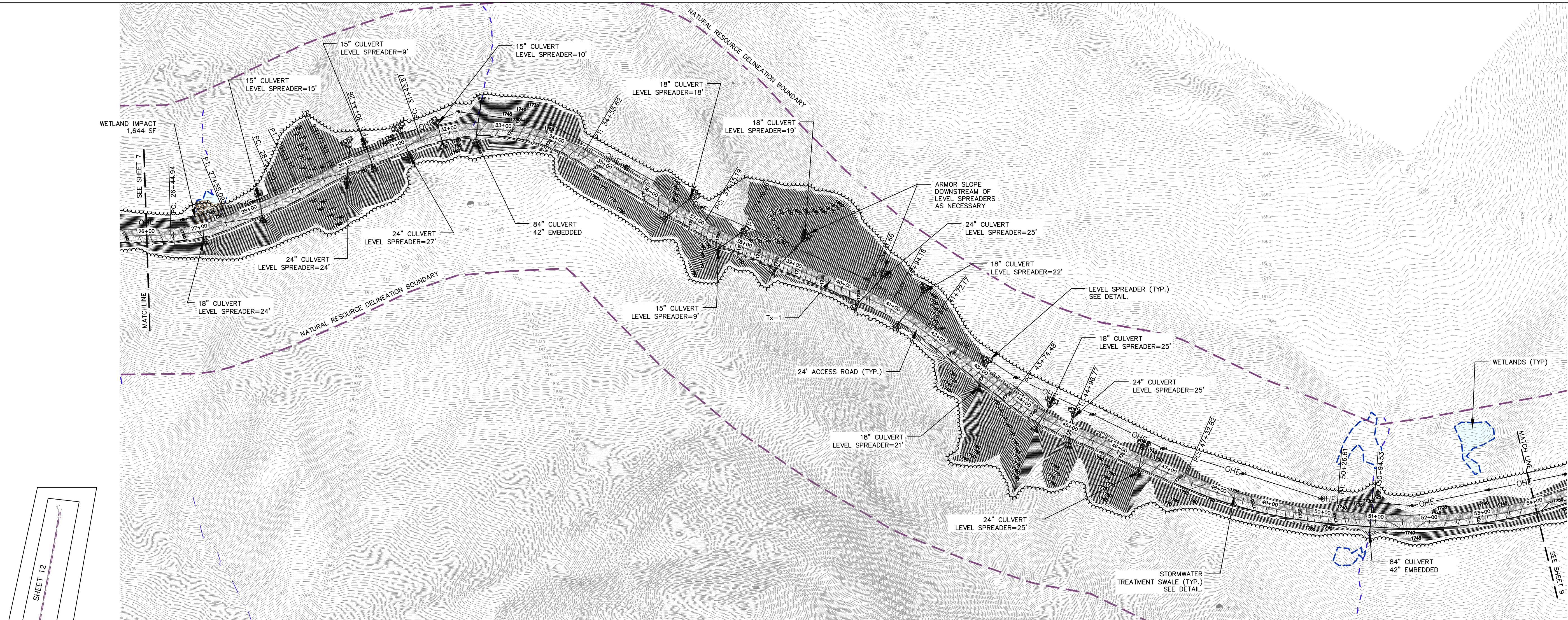
GABION OR BOULDER BARRIER SPACING FOR TREATMENT SWALES				
SLOPE %	0-3.9	4-7.9	8-11.9	12-16
FREQUENCY (FT)	135	65	40	30

- ❑ 50% SAND (MDOT 703.01)
- ❑ 20% SANDY LOAM TO FINE SANDY LOAM (TABLE 7.1.2 BMP CHAPTER 7.1)
- ❑ 30% MATURE COMPOSTED WOODY FIBERS AND FINE SHREDDED BARK, SUPERHUMUS OR EQUIVALENT



CRANE PATH WIDTH 39.5 FEET

TREATMENT SWALE DETAIL
SECTION VIEW



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TWIN ENERGY LLC		Designed By JAO	Drawn By SAW	Date
RUMFORD, MAINE		Date 11/03/2023	Scale AS SHOWN	
RUMFORD, MAINE		Project Location	AS SHOWN	
GRADING PLAN STA 26+00 TO 54+00		Approved JAO	Checked BOH	

381.20.01

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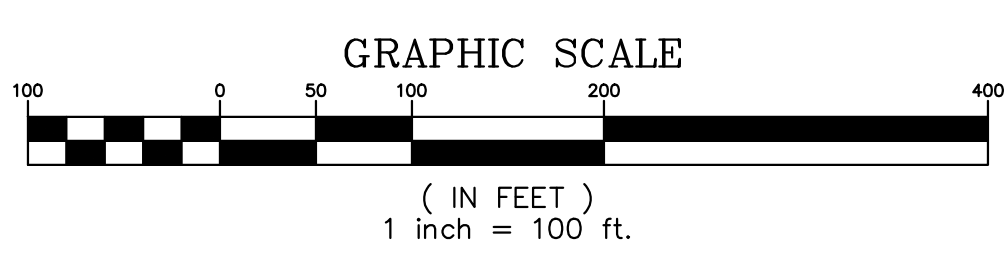
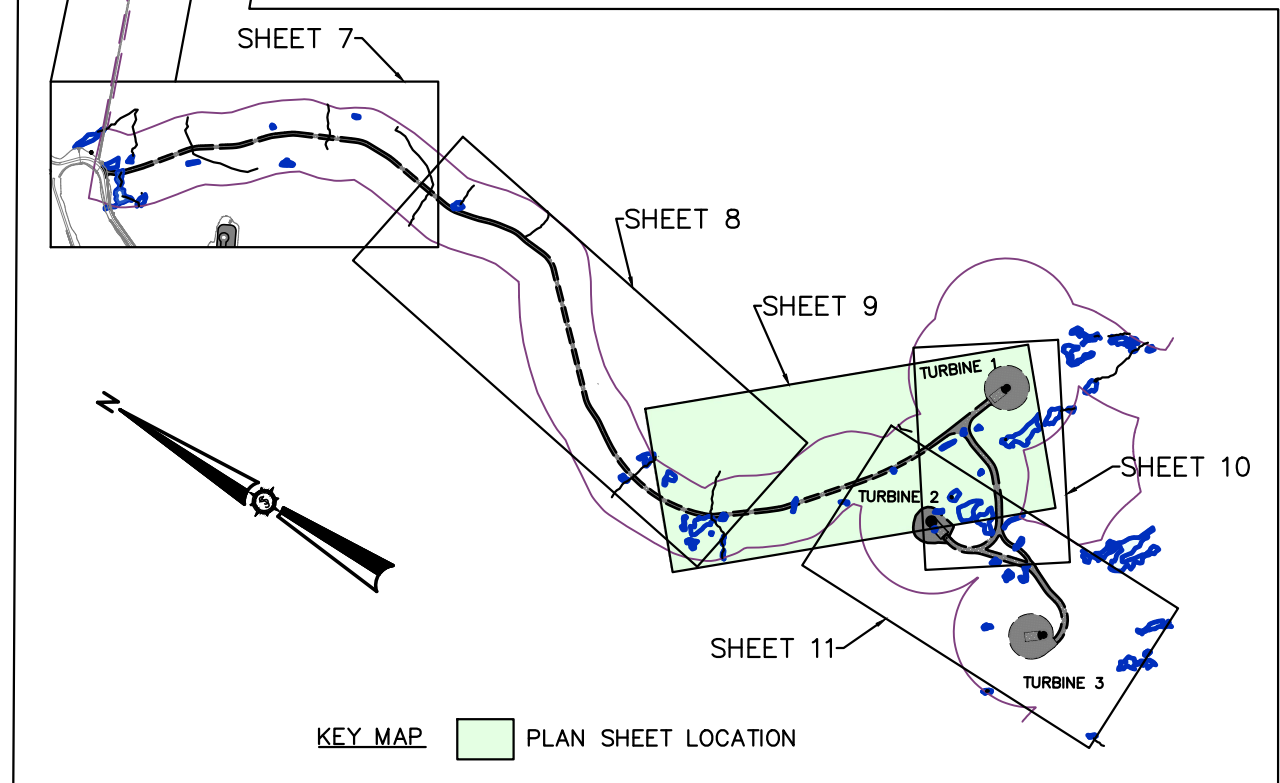
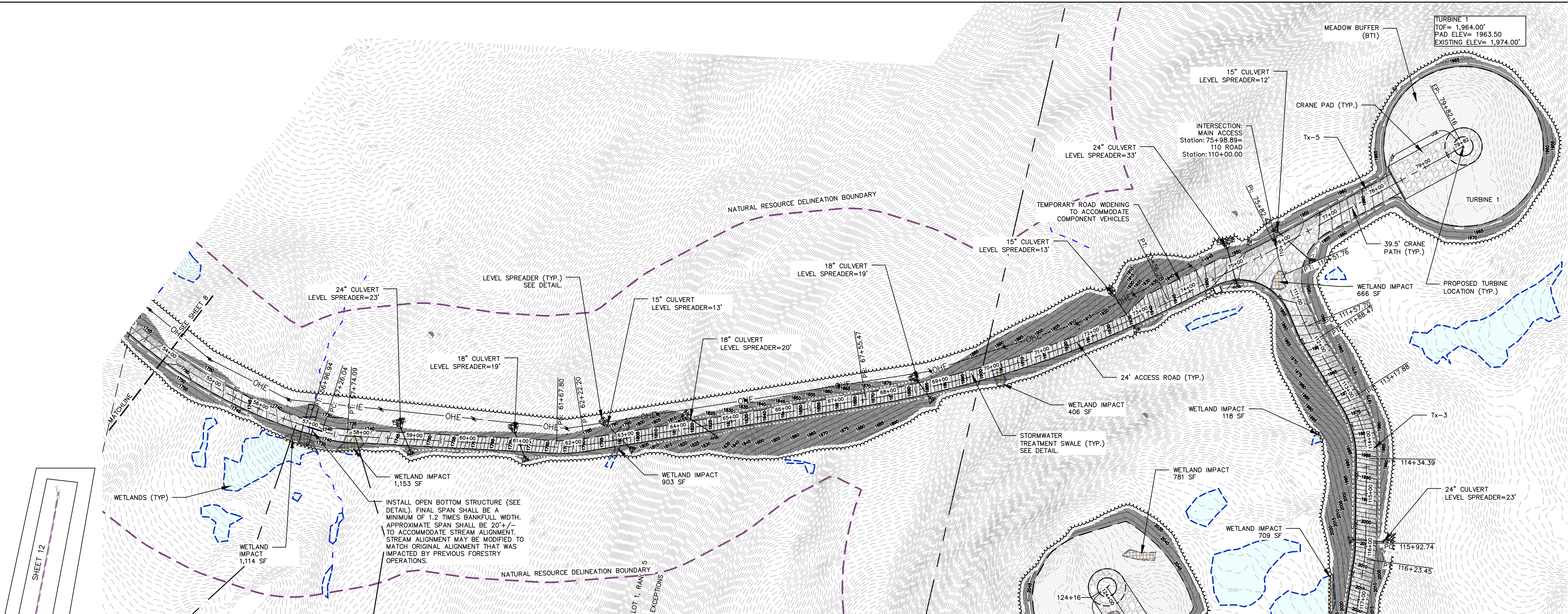
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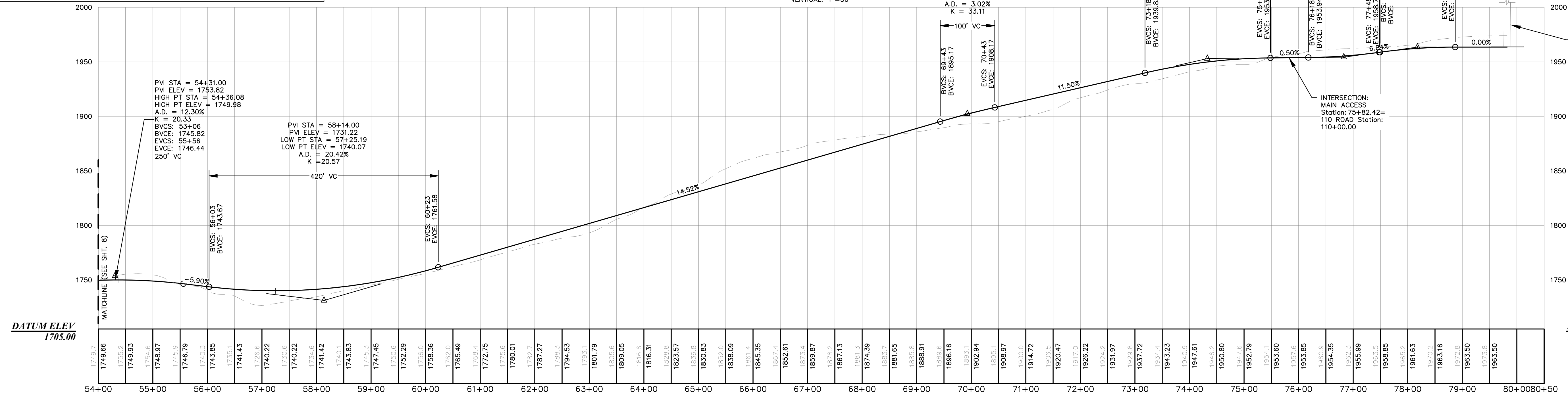
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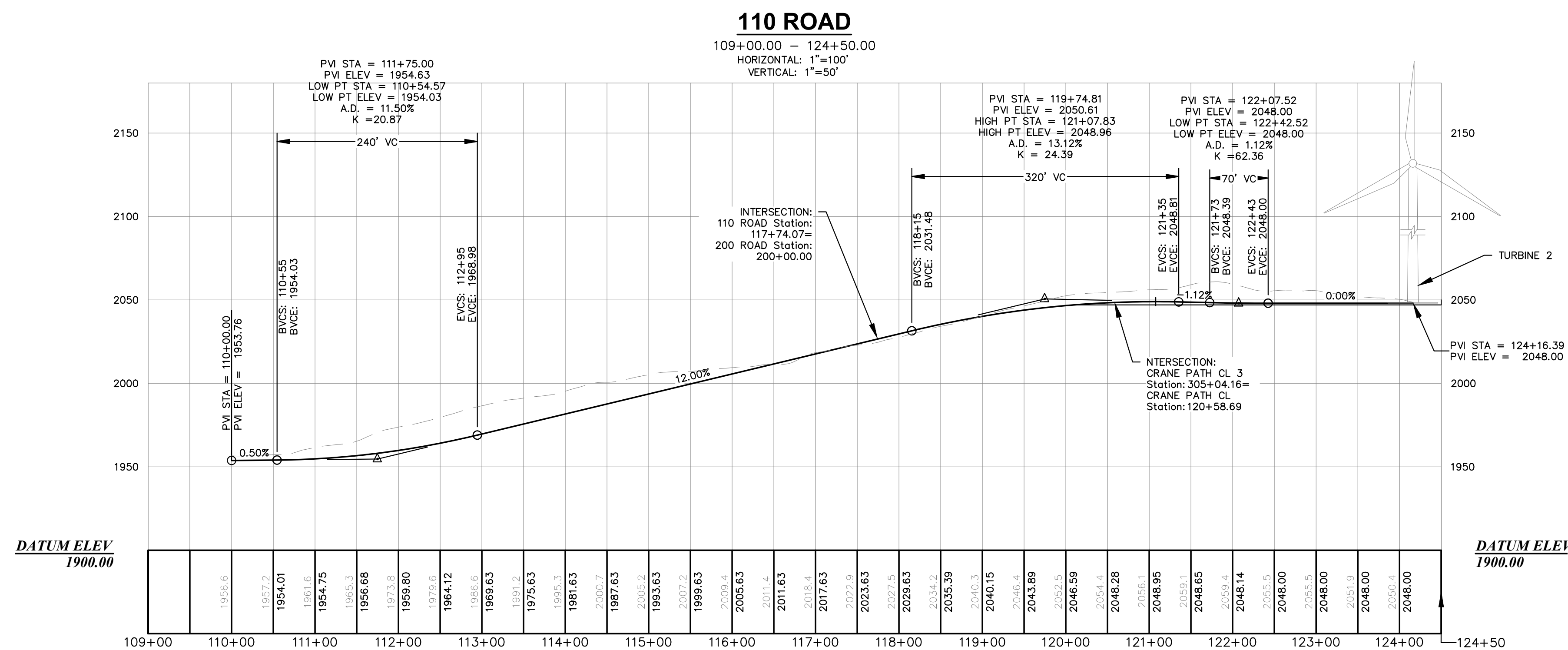
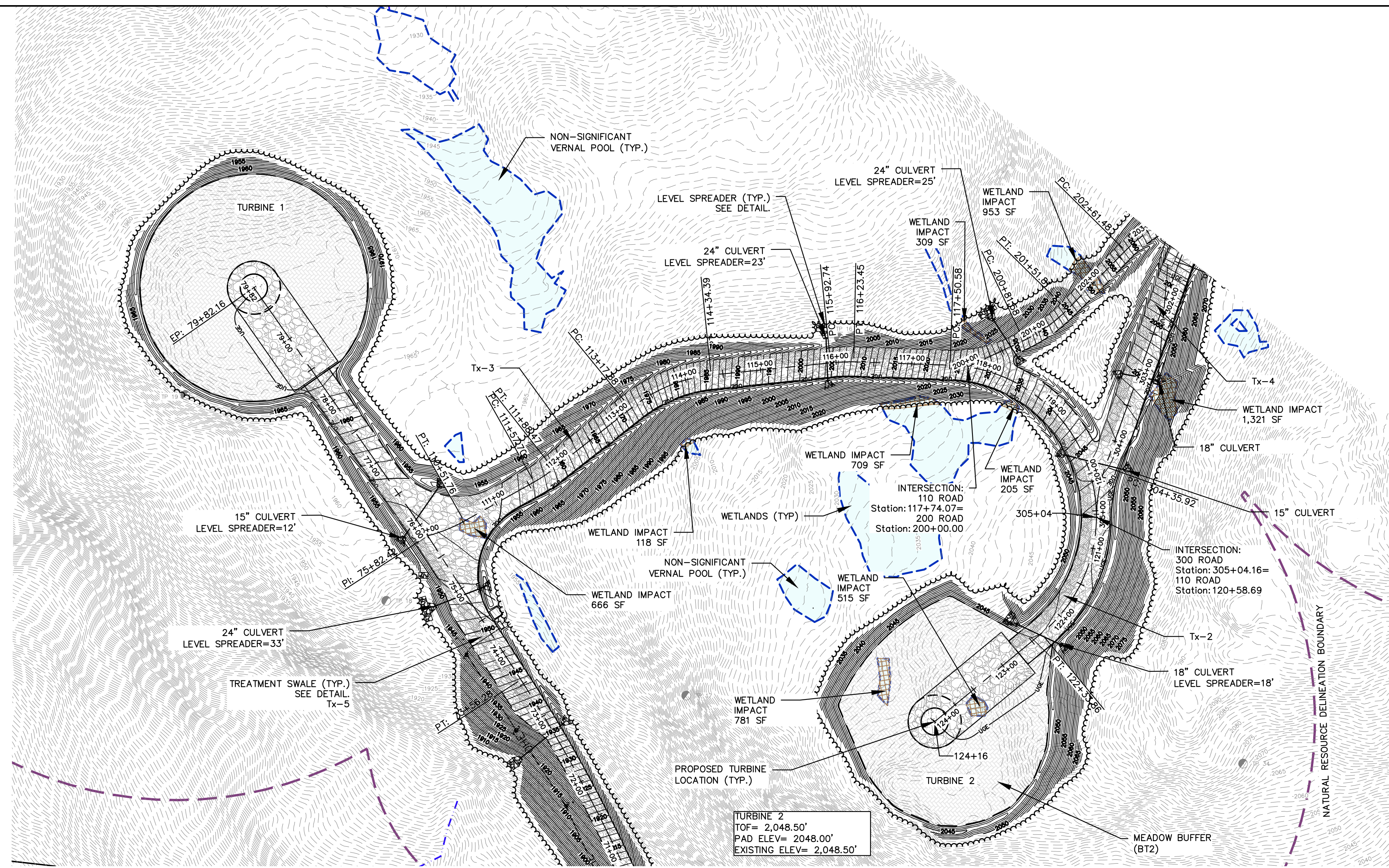
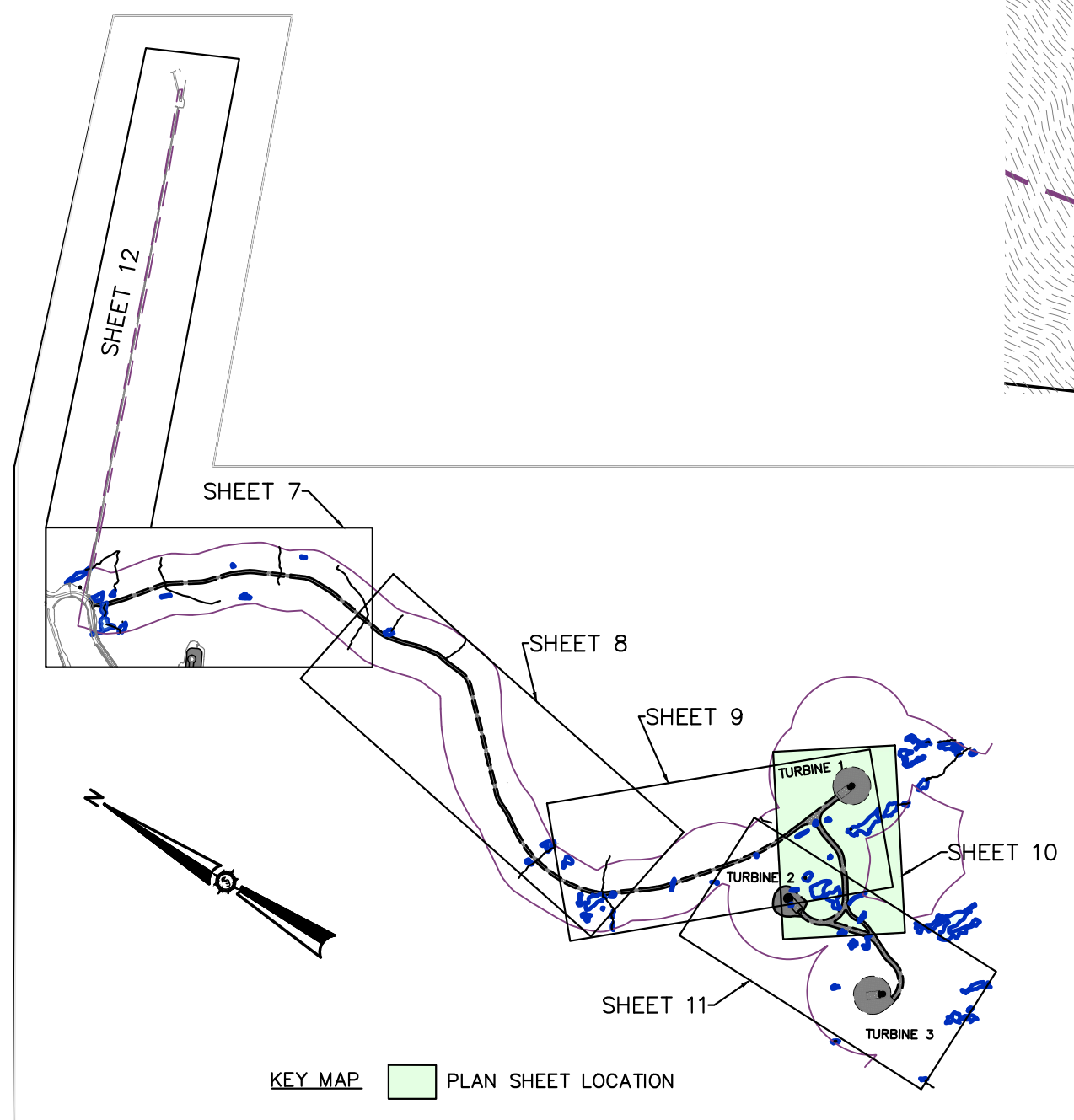


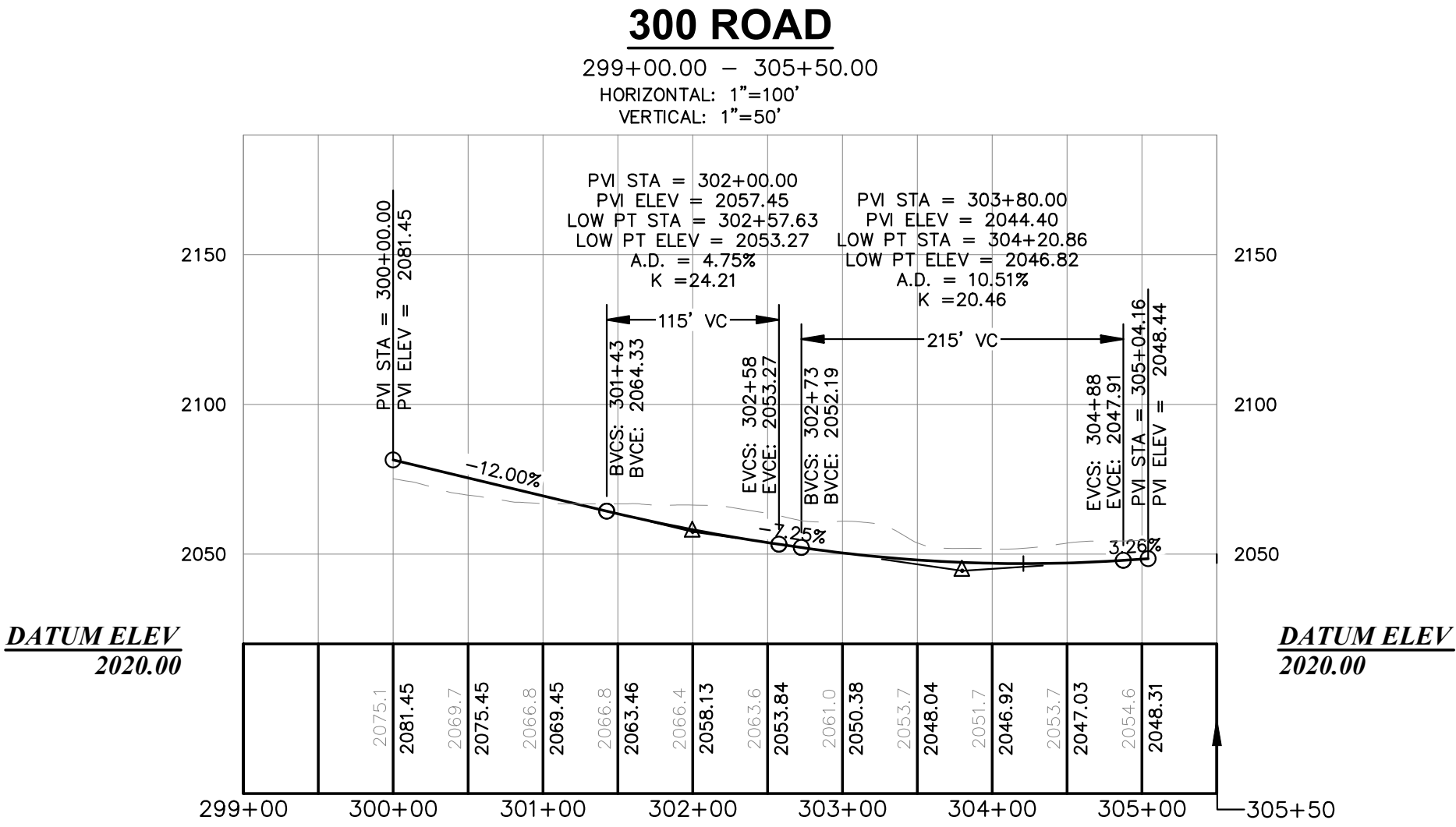
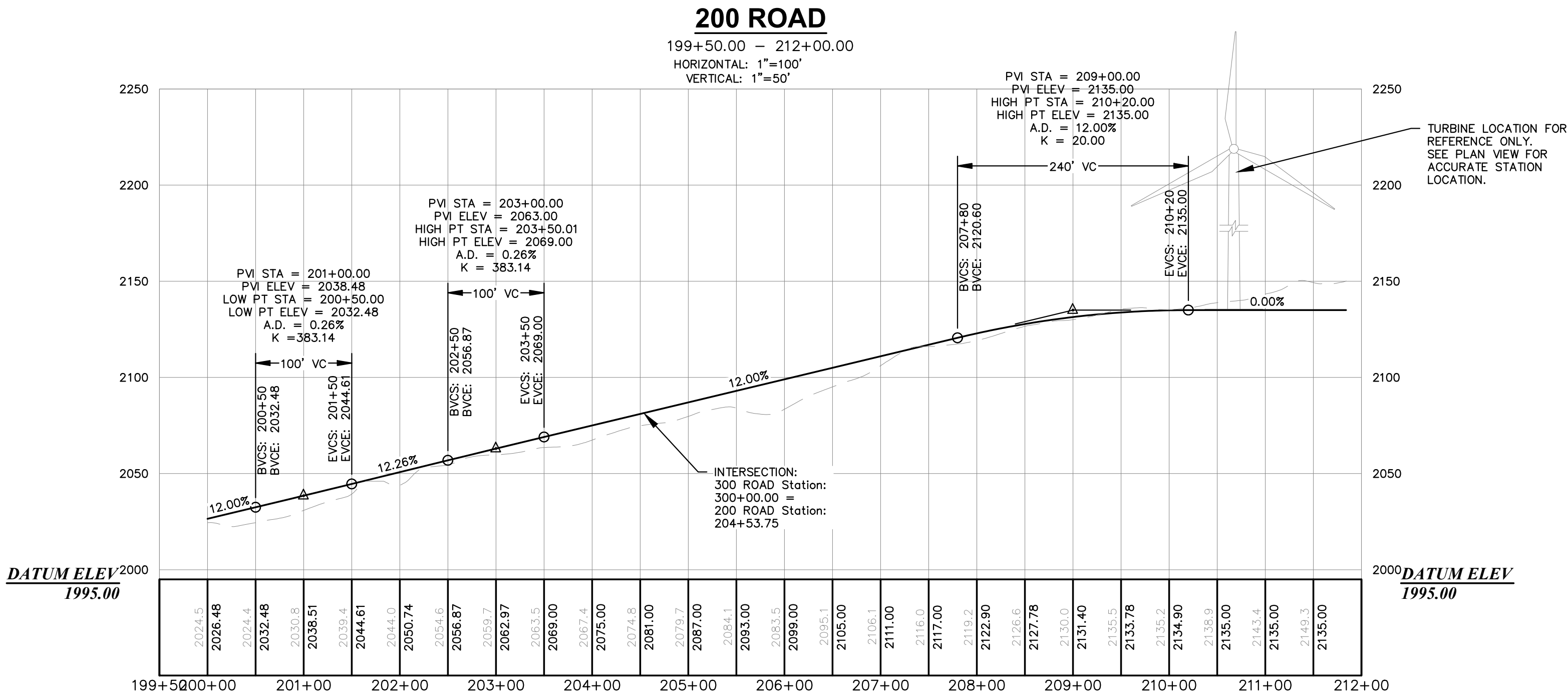
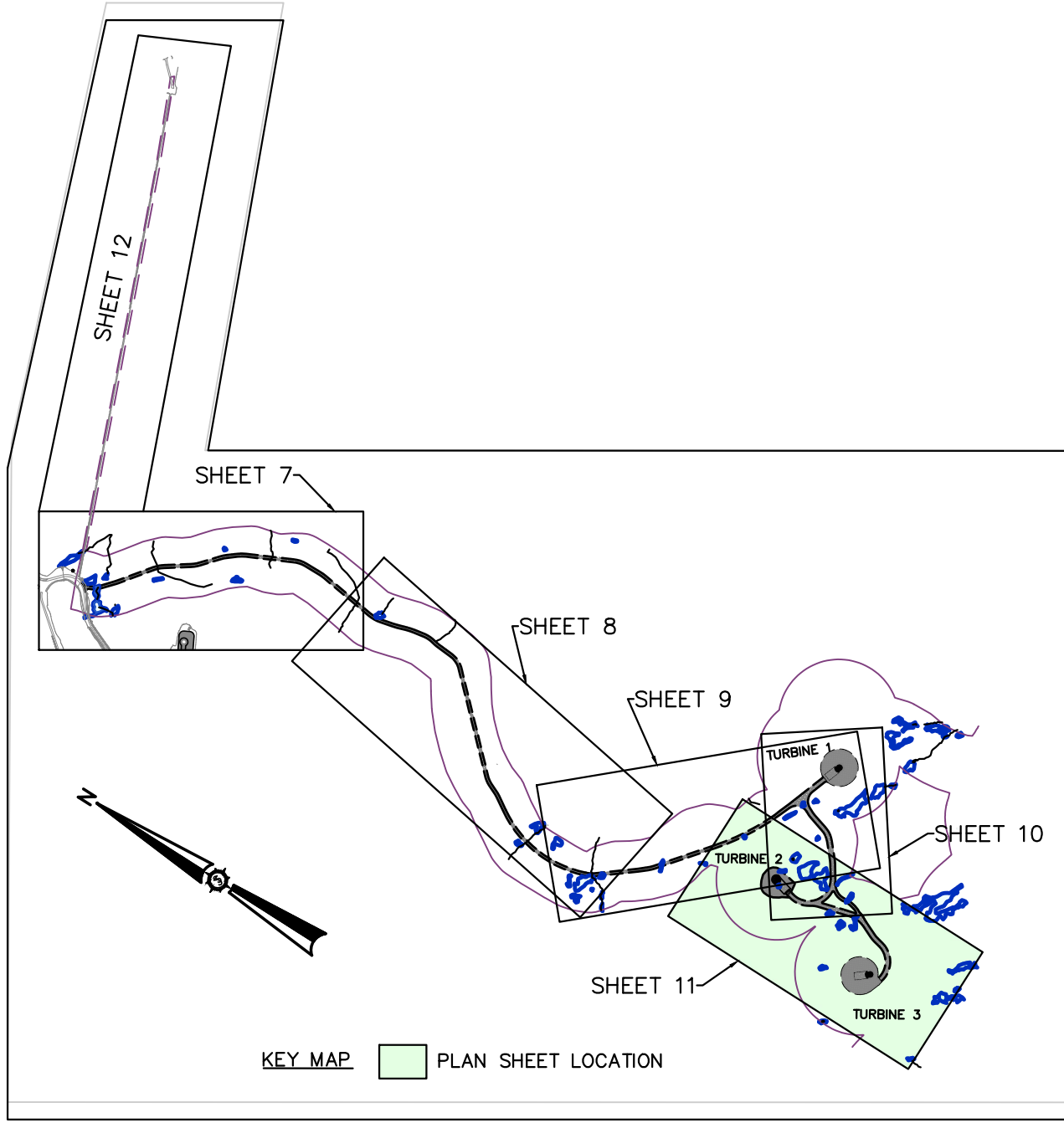
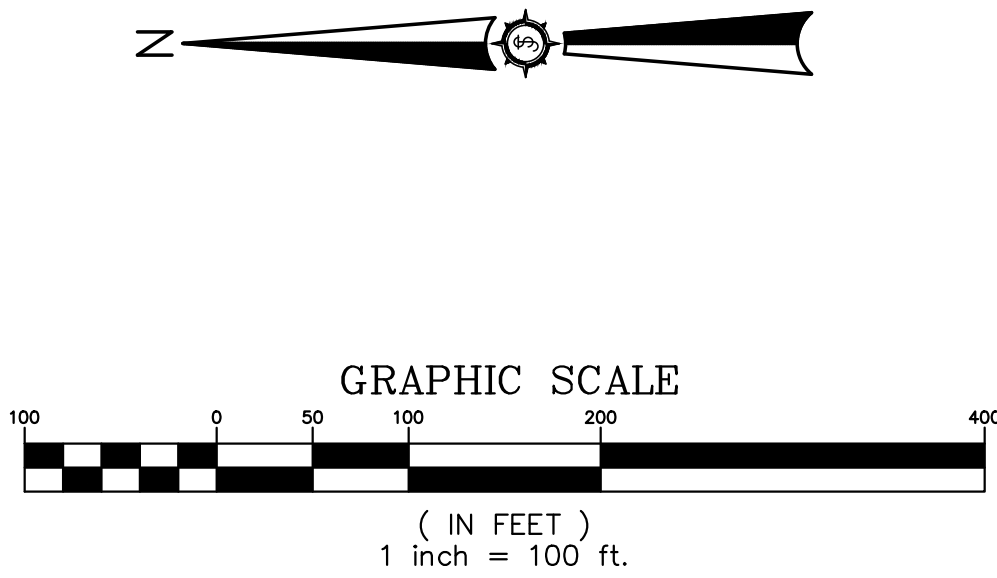
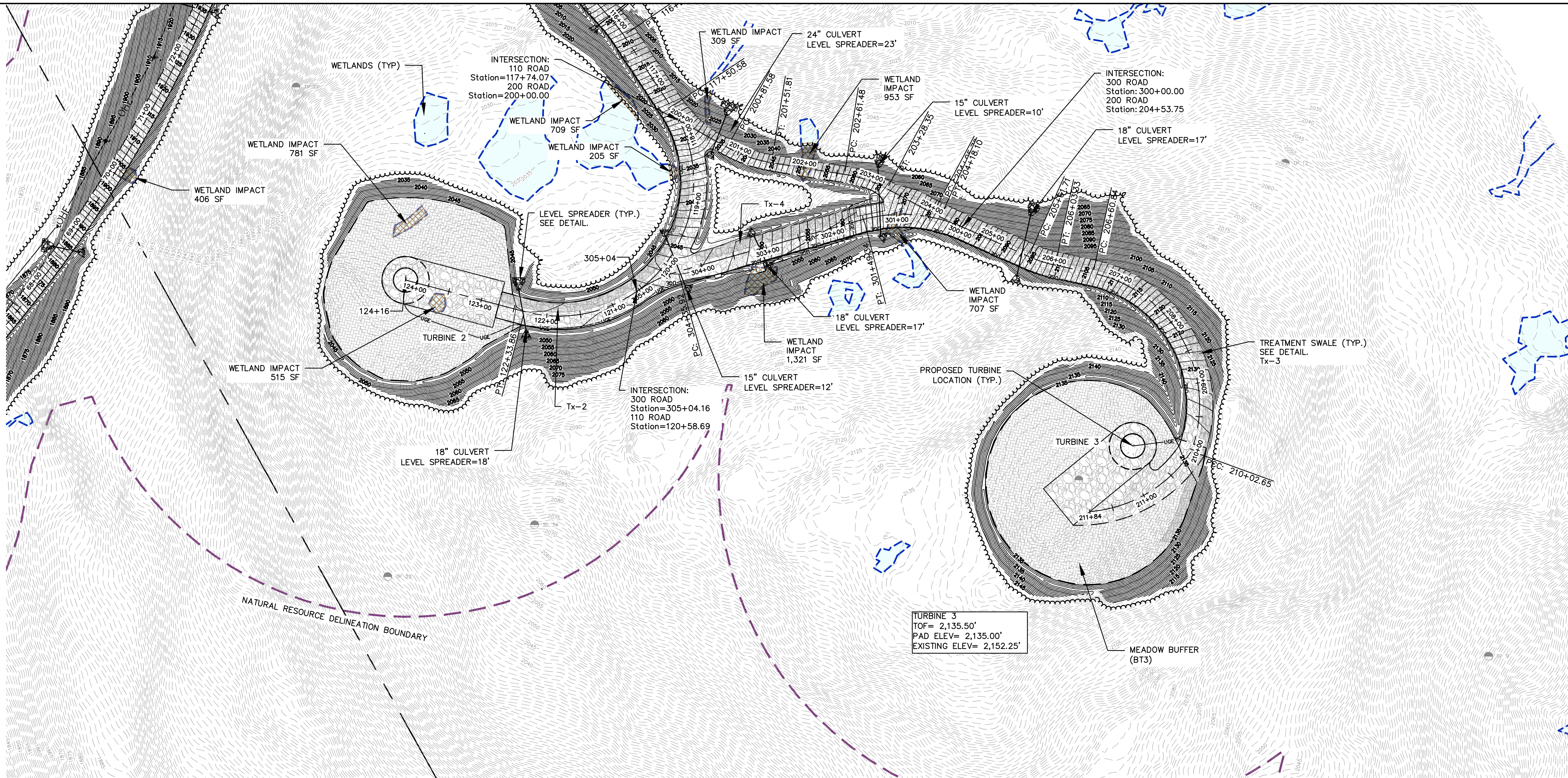
MAIN ACCESS
54+00.00 — 80+50.00
HORIZONTAL: 1"=100'
VERTICAL: 1"=50'



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TWIN ENERGY LLC		Project Location RUMFORD, MAINE		Project No. 381.20.01	
Designed By JAO	Drawn By SAW	Date 11/03/2023	Scale AS SHOWN	Approved JAO	Checked BOH
Project Description GRADING PLAN STA 54+00 TO 80+50			Professional Engineer DUBE-O'NEAL NO. 13020 LICENSED PROFESSIONAL ENGINEER 11/03/2023		
Project No. 381.20.01			Engineer 77 EXCHANGE ST SUITE 401 BANGOR, ME www.sewal.com		
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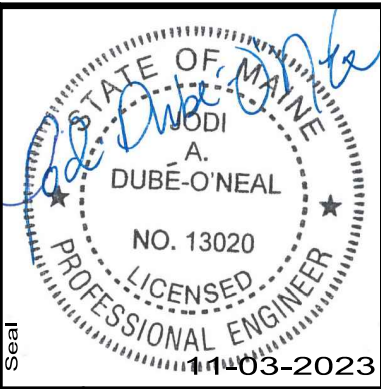




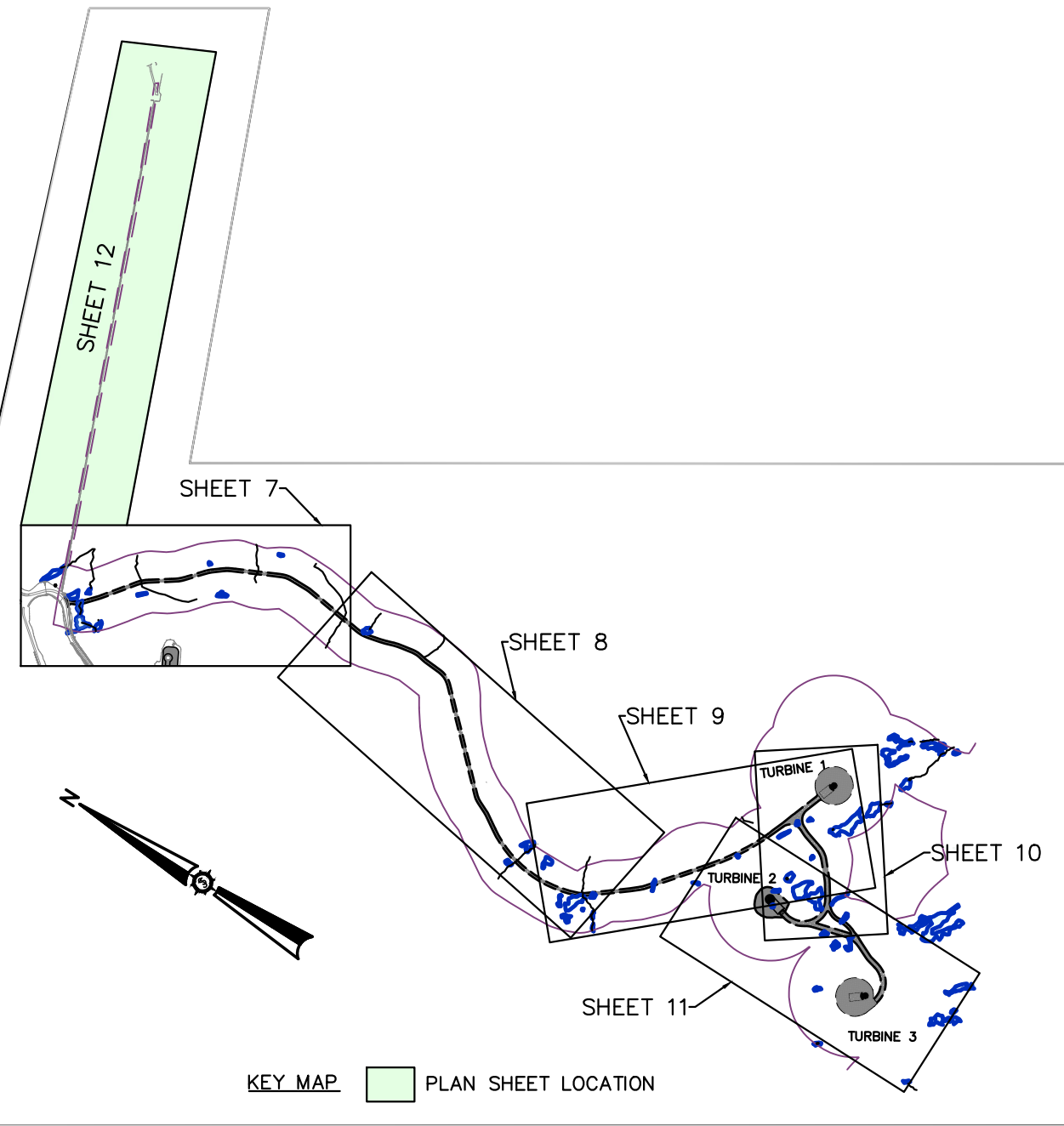
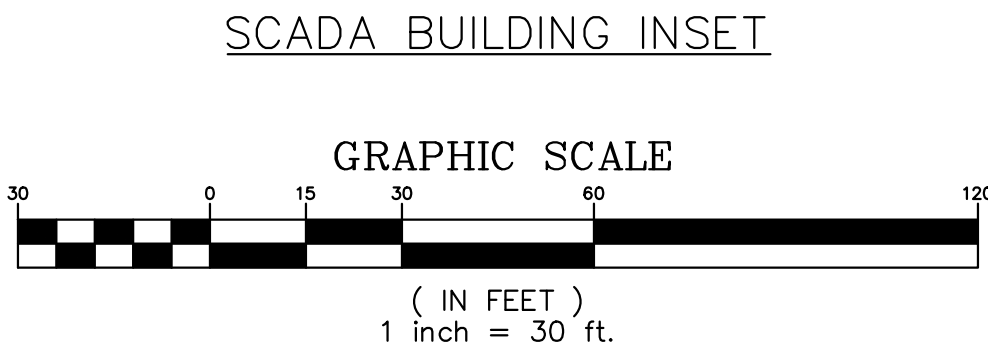
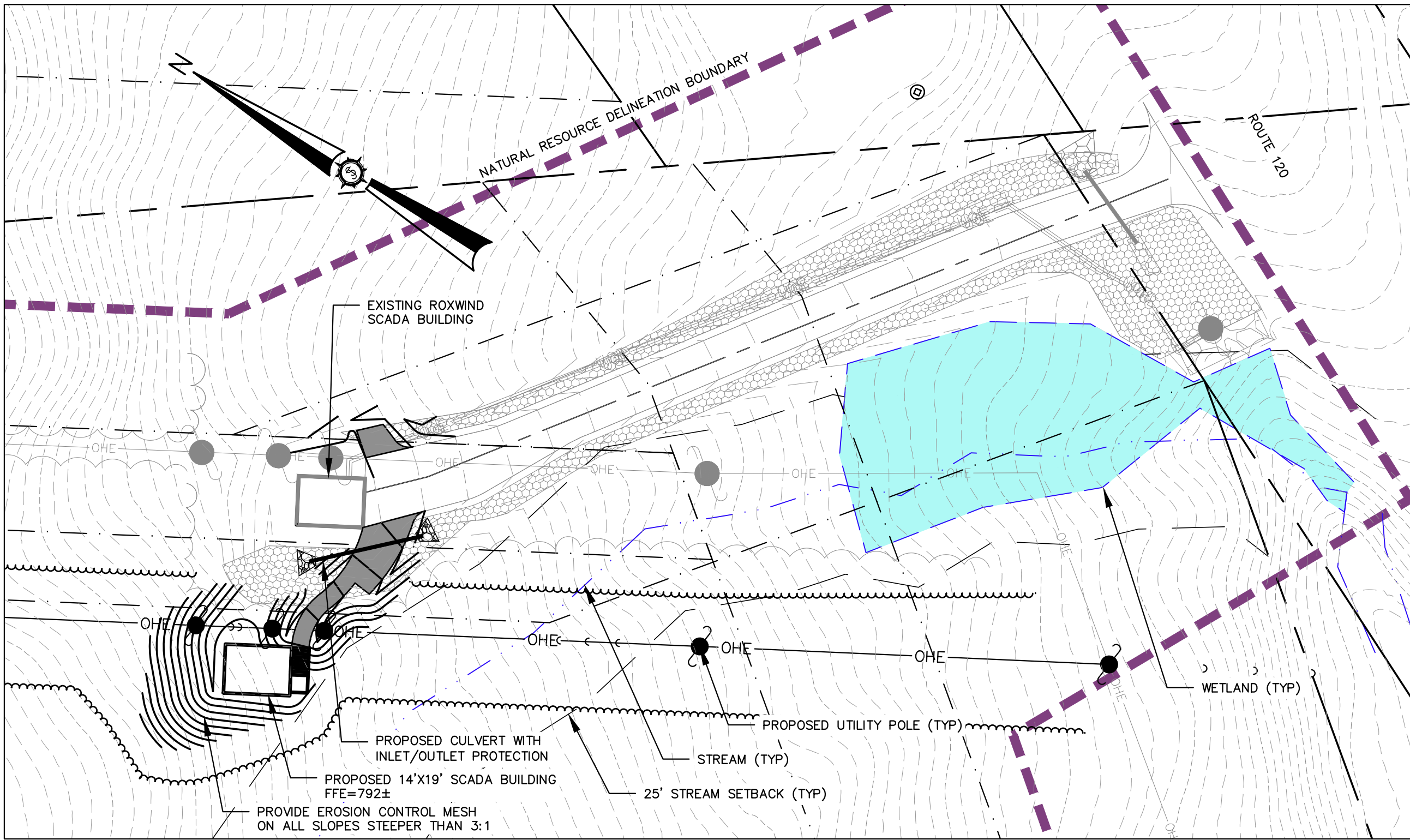
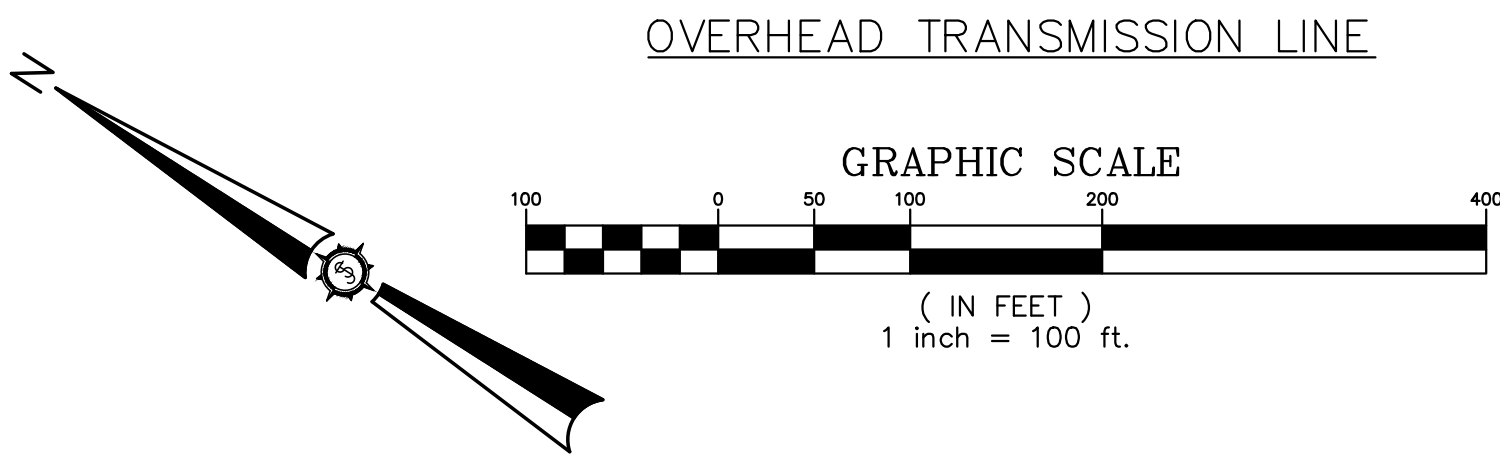
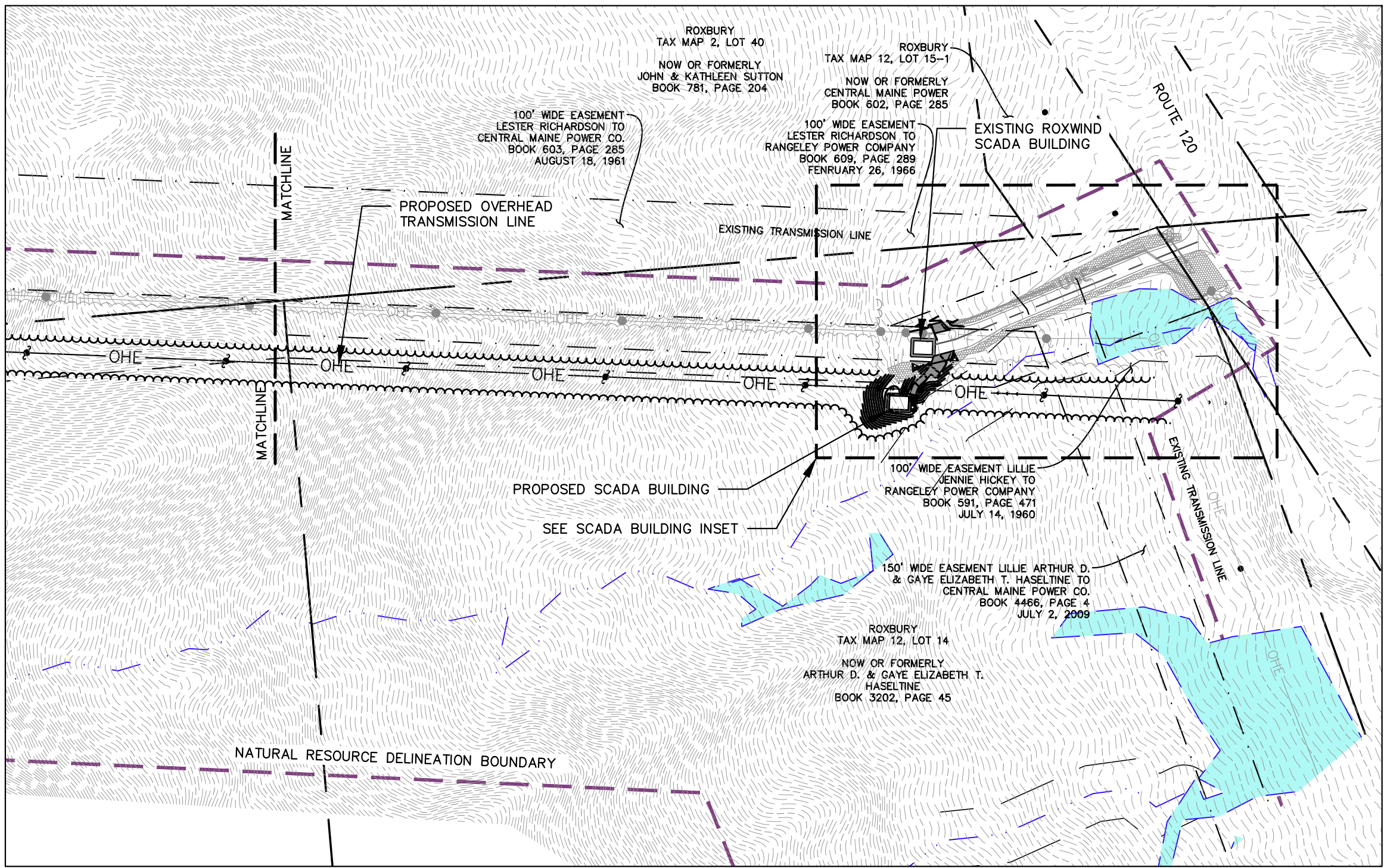
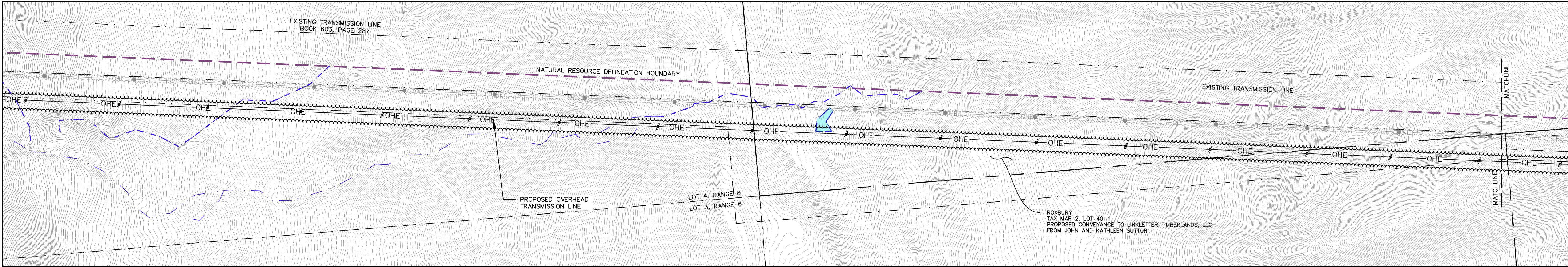
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Rev. #	Drawn By	Description	Date

Designed By JAO	Drawn By SAW	Checked BCH
Date 11/03/2023	Scale AS SHOWN	Approved JAO
Project Location RUMFORD, MAINE		
Drawing Description GRADING PLAN STA 199+50 TO 211+50 & STA 299+00 TO 305+50		

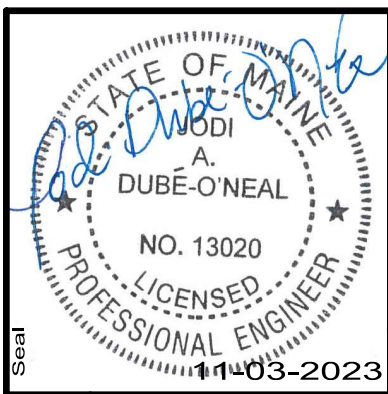


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Date 11/03/2023	Scale AS SHOWN	Approved JAO
Project Location RUMFORD, MAINE		
Drawing Description OVERHEAD TRANSMISSION LINE AND SCADA BUILDING PLAN		
TWIN ENERGY LLC		

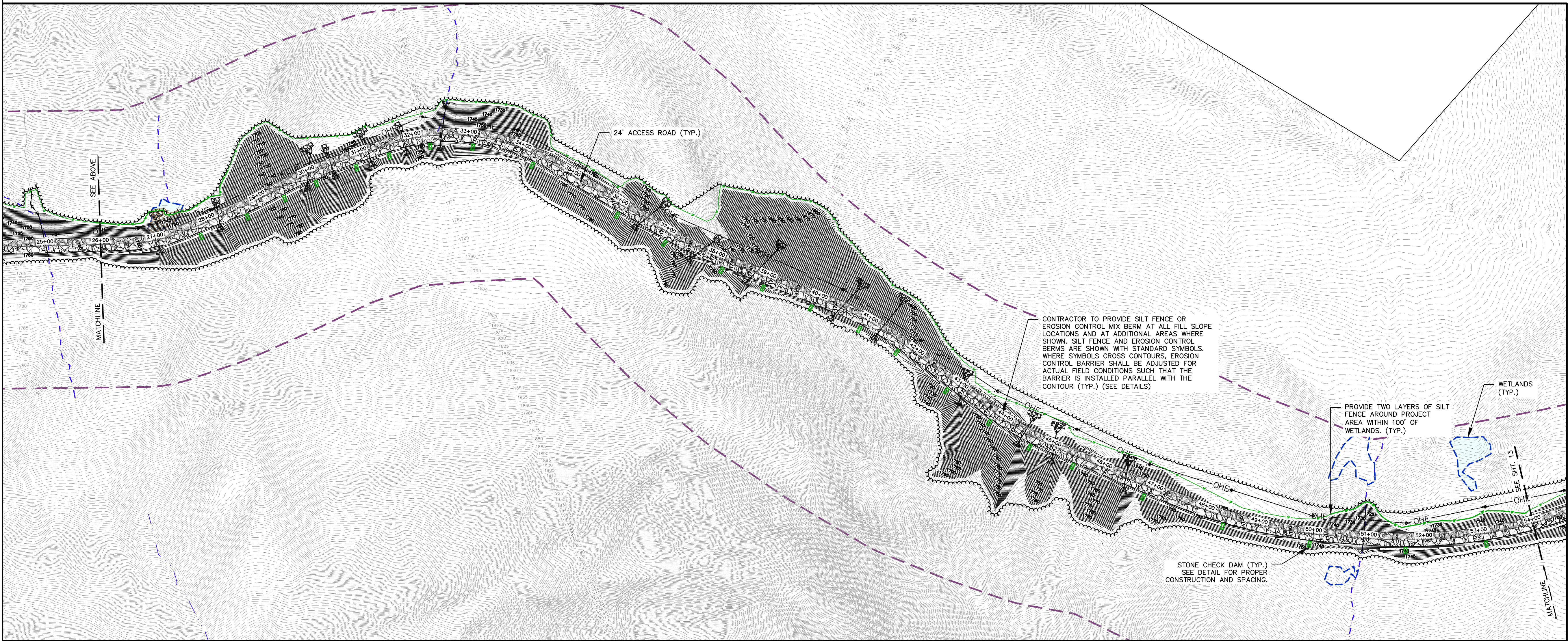


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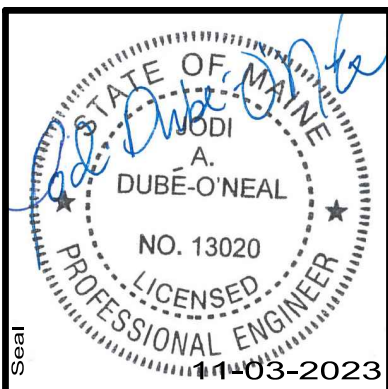
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Drawn By	Checked By	Date
JAO	SAW	
11/03/2023		
AS SHOWN		
JAO	BCH	

TWIN ENERGY LLC	Drawn By	SAW
RUMFORD, MAINE	Checked By	BCH
RUMFORD, MAINE	Project Location	
RUMFORD, MAINE	Scale	AS SHOWN
TWIN ENERGY PROJECT, EROSION AND SEDIMENTATION CONTROL PLAN	Approved	JAO



381.20.01

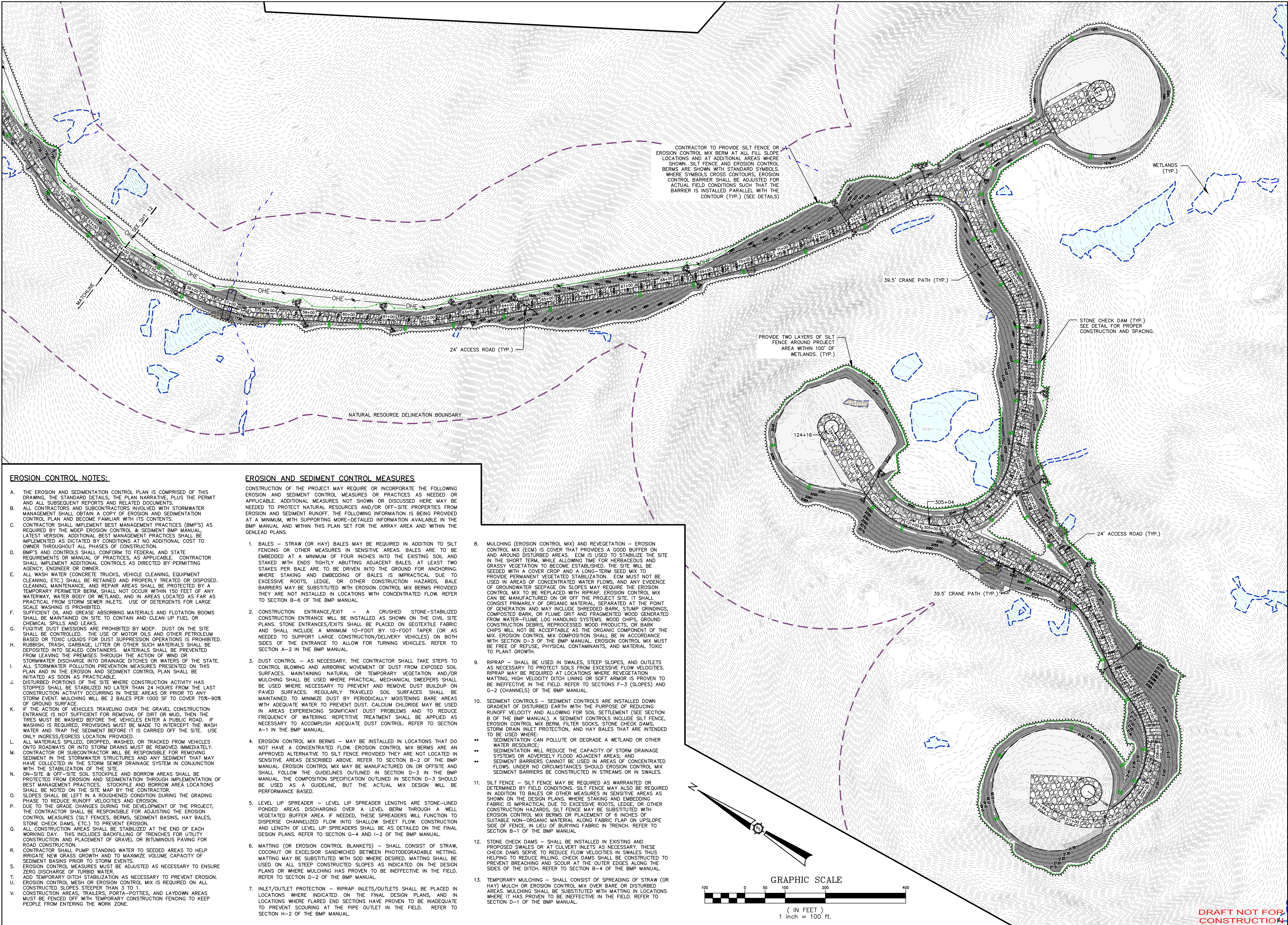
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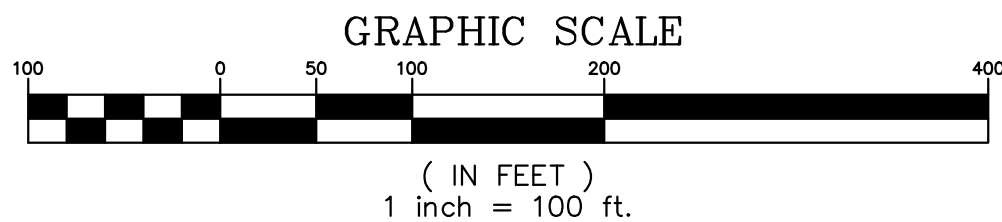
EROSION CONTROL NOTES:

- THE EROSION AND SEDIMENTATION CONTROL PLAN IS COMPRISED OF THIS DRAWING, THE STANDARD DETAILS, THE PLAN NARRATIVE, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
- ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORMWATER MANAGEMENT SHALL OBTAIN A COPY OF EROSION AND SEDIMENTATION CONTROL PLAN AND BECOME FAMILIAR WITH ITS CONTENTS.
- CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED BY THE MDEP EROSION CONTROL & SEDIMENT BMP MANUAL, LATEST VERSION. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
- BMP'S AND CONTROLS SHALL CONFORM TO FEDERAL AND STATE REQUIREMENTS OR MANUAL OF PRACTICES, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY, ENGINEER OR OWNER.
- ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE RETAINED AND PROPERLY TREATED OR DISPOSED. CLEANING, MAINTENANCE, AND REPAIR AREAS SHALL BE PROTECTED BY A TEMPORARY PERIMETER BERM, SHALL NOT OCCUR WITHIN 150 FEET OF ANY WATERWAY, WATER BODY OR WETLAND, AND IN AREAS LOCATED AS FAR AS PRACTICAL FROM STORM SEWER INLETS. USE OF DETERGENTS FOR LARGE SCALE WASHING IS PROHIBITED.
- SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLotation BOOMS SHALL BE MAINTAINED ON SITE TO CONTAIN AND CLEAN UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- FUGITIVE DUST EMISSIONS ARE PROHIBITED BY MDEP. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED. RUBBISH, TRASH, GARBAGE, LITTER OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE, DITCHES OR WATERS OF THE STATE. ALL STORMWATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN AND IN THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE INITIATED AS SOON AS PRACTICABLE.
- DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED SHALL BE STABILIZED NO LATER THAN 24 HOURS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS OR PRIOR TO ANY STORM EVENT. MULCHING WILL BE 2 BALES PER 1000 SF TO COVER 75%-90% OF GROUND SURFACE.
- IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCE IS NOT SUFFICIENT FOR REMOVAL OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS REQUIRED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE. USE ONLY INGRESS/EGRESS LOCATION PROVIDED.
- ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. CONTRACTOR OR SUBCONTRACTOR WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE STORMWATER STRUCTURES AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEM IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
- ON-SITE & OFF-SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP BY THE CONTRACTOR.
- SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, BERMS, SEDIMENT BASINS, HAY BALES, STONE CHECK DAMS, ETC.) TO PREVENT EROSION.
- ALL CONSTRUCTION AREAS SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.
- CONTRACTOR SHALL PUMP STANDING WATER TO SEEDED AREAS TO HELP IRRIGATE NEW GRASS GROWTH AND TO MAXIMIZE VOLUME CAPACITY OF SEDIMENT BASINS PRIOR TO STORM EVENTS.
- EROSION CONTROL MEASURES MUST BE ADJUSTED AS NECESSARY TO ENSURE ZERO DISCHARGE OF TURBID WATER.
- ADD TEMPORARY DITCH STABILIZATION AS NECESSARY TO PREVENT EROSION.
- EROSION CONTROL MESH OR EROSION CONTROL MIX IS REQUIRED ON ALL CONSTRUCTED SLOPES STEEPER THAN 3 TO 1.
- MUST BE FENCED OFF WITH TEMPORARY CONSTRUCTION FENCING TO KEEP PEOPLE FROM ENTERING THE WORK ZONE.

EROSION AND SEDIMENT CONTROL MEASURES

CONSTRUCTION OF THE PROJECT MAY REQUIRE OR INCORPORATE THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES OR PRACTICES AS NEEDED OR APPLICABLE. ADDITIONAL MEASURES NOT SHOWN OR DISCUSSED HERE MAY BE NEEDED TO PROTECT NATURAL RESOURCES AND/OR OFF-SITE PROPERTIES FROM EROSION AND SEDIMENT RUNOFF. THE FOLLOWING INFORMATION IS BEING PROVIDED AT A MINIMUM, WITH SUPPORTING MORE-DETAILED INFORMATION AVAILABLE IN THE BMP MANUAL AND WITHIN THIS PLAN SET FOR THE ARRAY AREA AND WITHIN THE GENLEAD PLANS.

- BALES – STRAW (OR HAY) BALES** MAY BE REQUIRED IN ADDITION TO SILT FENCING OR OTHER MEASURES IN SENSITIVE AREAS. BALES ARE TO BE EMBEDDED AT A MINIMUM OF FOUR INCHES INTO THE EXISTING SOIL AND STAKED WITH ENDS TIGHTLY ABUTTING ADJACENT BALES. AT LEAST TWO STAKES PER BALE ARE TO BE DRIVEN INTO THE GROUND FOR ANCHORING. WHERE STAKING AND EMBEDDING OF BALES IS IMPRACTICAL DUE TO EXCESSIVE ROOTS, LEDGE, OR OTHER CONSTRUCTION HAZARDS, BALE BARRIERS MAY BE SUBSTITUTED WITH EROSION CONTROL MIX BERMS PROVIDED THEY ARE NOT INSTALLED IN LOCATIONS WITH CONCENTRATED FLOW. REFER TO SECTION B-6 OF THE BMP MANUAL.
- CONSTRUCTION ENTRANCE/EXIT –** A CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCE WILL BE INSTALLED AS SHOWN ON THE CIVIL SITE PLANS. STONE ENTRANCES/EXITS SHALL BE PLACED ON GEOTEXTILE FABRIC AND SHALL INCLUDE A MINIMUM 10-FOOT BY 10-FOOT TAPER (OR AS NEEDED TO SUPPORT LARGE CONSTRUCTION/DELIVERY VEHICLES) ON BOTH SIDES OF THE ENTRANCE TO ALLOW FOR TURNING VEHICLES. REFER TO SECTION A-2 IN THE BMP MANUAL.
- DUST CONTROL –** AS NECESSARY, THE CONTRACTOR SHALL TAKE STEPS TO CONTROL BLOWING AND AIRBORNE MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES. MAINTAINING NATURAL OR TEMPORARY VEGETATION AND/OR MULCHING SHALL BE USED WHERE PRACTICAL. MECHANICAL SWEEPERS SHALL BE USED WHERE NECESSARY TO PREVENT AND REMOVE DUST BUILDUP ON PAVED SURFACES. REGULARLY TRAVELED SOIL SURFACES SHALL BE MAINTAINED TO MINIMIZE DUST BY PERIODICALLY MOISTENING BARE AREAS WITH ADEQUATE WATER TO PREVENT DUST. CALCIUM CHLORIDE MAY BE USED IN AREAS EXPERIENCING SIGNIFICANT DUST PROBLEMS AND TO REDUCE FREQUENCY OF WATERING. REPETITIVE TREATMENT SHALL BE APPLIED AS NECESSARY TO ACCOMPLISH ADEQUATE DUST CONTROL. REFER TO SECTION A-1 IN THE BMP MANUAL.
- EROSION CONTROL MIX BERMS –** MAY BE INSTALLED IN LOCATIONS THAT DO NOT HAVE A CONCENTRATED FLOW. EROSION CONTROL MIX BERMS ARE AN APPROVED ALTERNATIVE TO SILT FENCE PROVIDED THEY ARE NOT LOCATED IN SENSITIVE AREAS DESCRIBED ABOVE. REFER TO SECTION B-2 OF THE BMP MANUAL. EROSION CONTROL MIX MAY BE MANUFACTURED ON OR OFFSITE AND SHALL FOLLOW THE GUIDELINES OUTLINED IN SECTION D-3 IN THE BMP MANUAL. THE COMPOSITION SPECIFICATION OUTLINED IN SECTION D-3 SHOULD BE USED AS A GUIDELINE, BUT THE ACTUAL MIX DESIGN WILL BE PERFORMANCE BASED.
- LEVEL LIP SPREADER –** LEVEL LIP SPREADER LENGTHS ARE STONE-LINED PONDED AREAS DISCHARGING OVER A LEVEL BERM THROUGH A WELL VEGETATED BUFFER AREA. IF NEEDED, THESE SPREADERS WILL FUNCTION TO DISPERSE CHANNELIZED FLOW INTO SHALLOW SHEET FLOW. CONSTRUCTION AND LENGTH OF LEVEL LIP SPREADERS SHALL BE AS DETAILED ON THE FINAL DESIGN PLANS. REFER TO SECTION G-4 AND I-2 OF THE BMP MANUAL.
- MATTING (OR EROSION CONTROL BLANKETS) –** SHALL CONSIST OF STRAW, COCONUT OR EXCELSIOR SANDWICHED BETWEEN PHOTODEGRADABLE NETTING. MATTING MAY BE SUBSTITUTED WITH SOD WHERE DESIRED. MATTING SHALL BE USED ON ALL STEEP CONSTRUCTED SLOPES AS INDICATED ON THE DESIGN PLANS OR WHERE MULCHING HAS PROVEN TO BE INEFFECTIVE IN THE FIELD. REFER TO SECTION D-2 OF THE BMP MANUAL.
- INLET/OUTLET PROTECTION –** RIPRAP INLETS/OUTLETS SHALL BE PLACED IN LOCATIONS WHERE INDICATED ON THE FINAL DESIGN PLANS, AND IN LOCATIONS WHERE FLARED END SECTIONS HAVE PROVEN TO BE INADEQUATE TO PREVENT SCOURING AT THE PIPE OUTLET IN THE FIELD. REFER TO SECTION H-2 OF THE BMP MANUAL.
- MULCHING (EROSION CONTROL MIX) AND REVEGETATION –** EROSION CONTROL MIX (ECM) IS COVER THAT PROVIDES A GOOD BUFFER ON AND AROUND DISTURBED AREAS. ECM IS USED TO STABILIZE THE SITE IN THE SHORT TERM, WHILE ALLOWING TIME FOR HERBACEOUS AND GRASSY VEGETATION TO BECOME ESTABLISHED. THE SITE WILL BE SEEDED WITH A COVER CROP AND A LONG-TERM SEED MIX TO PROVIDE PERMANENT VEGETATED STABILIZATION. ECM MUST NOT BE USED IN AREAS OF CONCENTRATED WATER FLOWS, AND ANY EVIDENCE OF GROUNDWATER SEEPAGE ON SLOPES MAY REQUIRE THE EROSION CONTROL MIX TO BE REPLACED WITH RIPRAP. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE PROJECT SITE. IT SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION AND MAY INCLUDE SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS. WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS, OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX. EROSION CONTROL MIX COMPOSITION SHALL BE IN ACCORDANCE WITH SECTION D-3 OF THE BMP MANUAL. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.
- RIPRAP –** SHALL BE USED IN SWALES, STEEP SLOPES, AND OUTLETS AS NECESSARY TO PROTECT SOILS FROM EXCESSIVE FLOW VELOCITIES. RIPRAP MAY BE REQUIRED AT LOCATIONS WHERE REVEGETATION MATTING, HIGH VELOCITY DITCH LINING OR SOFT ARMOR IS PROVEN TO BE INEFFECTIVE IN THE FIELD. REFER TO SECTIONS F-3 (SLOPES) AND G-2 (CHANNELS) OF THE BMP MANUAL.
- SEDIMENT CONTROLS –** SEDIMENT CONTROLS ARE INSTALLED DOWN GRADIENT OF DISTURBED EARTH WITH THE PURPOSE OF REDUCING RUNOFF VELOCITY AND ALLOWING FOR SOIL SETTLEMENT (SEE SECTION B OF THE BMP MANUAL). A SEDIMENT CONTROLS INCLUDE SILT FENCE, EROSION CONTROL MIX BERM, FILTER SOCKS, STONE CHECK DAMS, STORM DRAIN INLET PROTECTION, AND HAY BALES THAT ARE INTENDED TO BE USED WHERE:
 - SEDIMENTATION CAN POLLUTE OR DEGRADE A WETLAND OR OTHER WATER RESOURCE;
 - SEDIMENTATION WILL REDUCE THE CAPACITY OF STORM DRAINAGE SYSTEMS OR ADVERSELY FLOOD ADJACENT AREAS; AND
 - SEDIMENT BARRIERS CANNOT BE USED IN AREAS OF CONCENTRATED FLOWS. UNDER NO CIRCUMSTANCES SHOULD EROSION CONTROL MIX SEDIMENT BARRIERS BE CONSTRUCTED IN STREAMS OR IN SWALES.
- SILT FENCE –** SILT FENCE MAY BE REQUIRED AS WARRANTED OR DETERMINED BY FIELD CONDITIONS. SILT FENCE MAY ALSO BE REQUIRED IN ADDITION TO BALES OR OTHER MEASURES IN SENSITIVE AREAS AS SHOWN ON THE DESIGN PLANS. WHERE STAKING AND EMBEDDING FABRIC IS IMPRACTICAL DUE TO EXCESSIVE ROOTS, LEDGE, OR OTHER CONSTRUCTION HAZARDS, SILT FENCE MAY BE SUBSTITUTED WITH EROSION CONTROL MIX BERMS OR PLACEMENT OF 6 INCHES OF SUITABLE NON-ORGANIC MATERIAL ALONG FABRIC FLAP ON UPSLOPE SIDE OF FENCE, IN LIEU OF BURYING FABRIC IN TRENCH. REFER TO SECTION B-1 OF THE BMP MANUAL.
- STONE CHECK DAMS –** SHALL BE INSTALLED IN EXISTING AND PROPOSED SWALES OR AT CULVERT INLETS AS NECESSARY. THESE CHECK DAMS SERVE TO REDUCE FLOW VELOCITIES IN SWALES THUS HELPING TO REDUCE RILLING. CHECK DAMS SHALL BE CONSTRUCTED TO PREVENT BREACHING AND SCOUR AT THE OUTER EDGES ALONG THE SIDES OF THE DITCH. REFER TO SECTION B-4 OF THE BMP MANUAL.
- TEMPORARY MULCHING –** SHALL CONSIST OF SPREADING OF STRAW (OR HAY) MULCH OR EROSION CONTROL MIX OVER BARE OR DISTURBED AREAS. MULCHING SHALL BE SUBSTITUTED WITH MATTING IN LOCATIONS WHERE IT HAS PROVEN TO BE INEFFECTIVE IN THE FIELD. REFER TO SECTION D-1 OF THE BMP MANUAL.

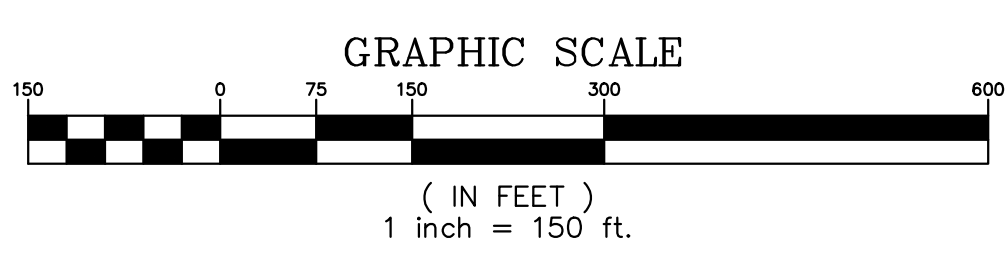
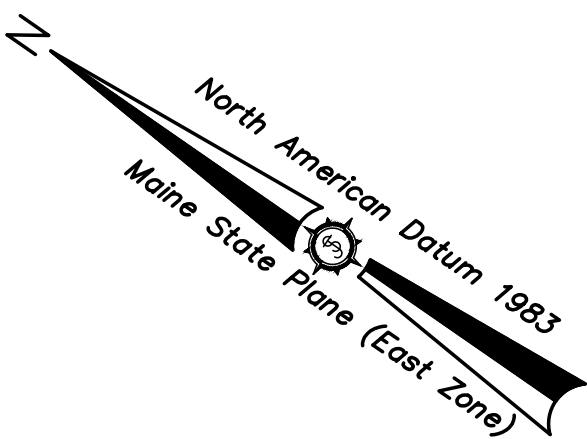
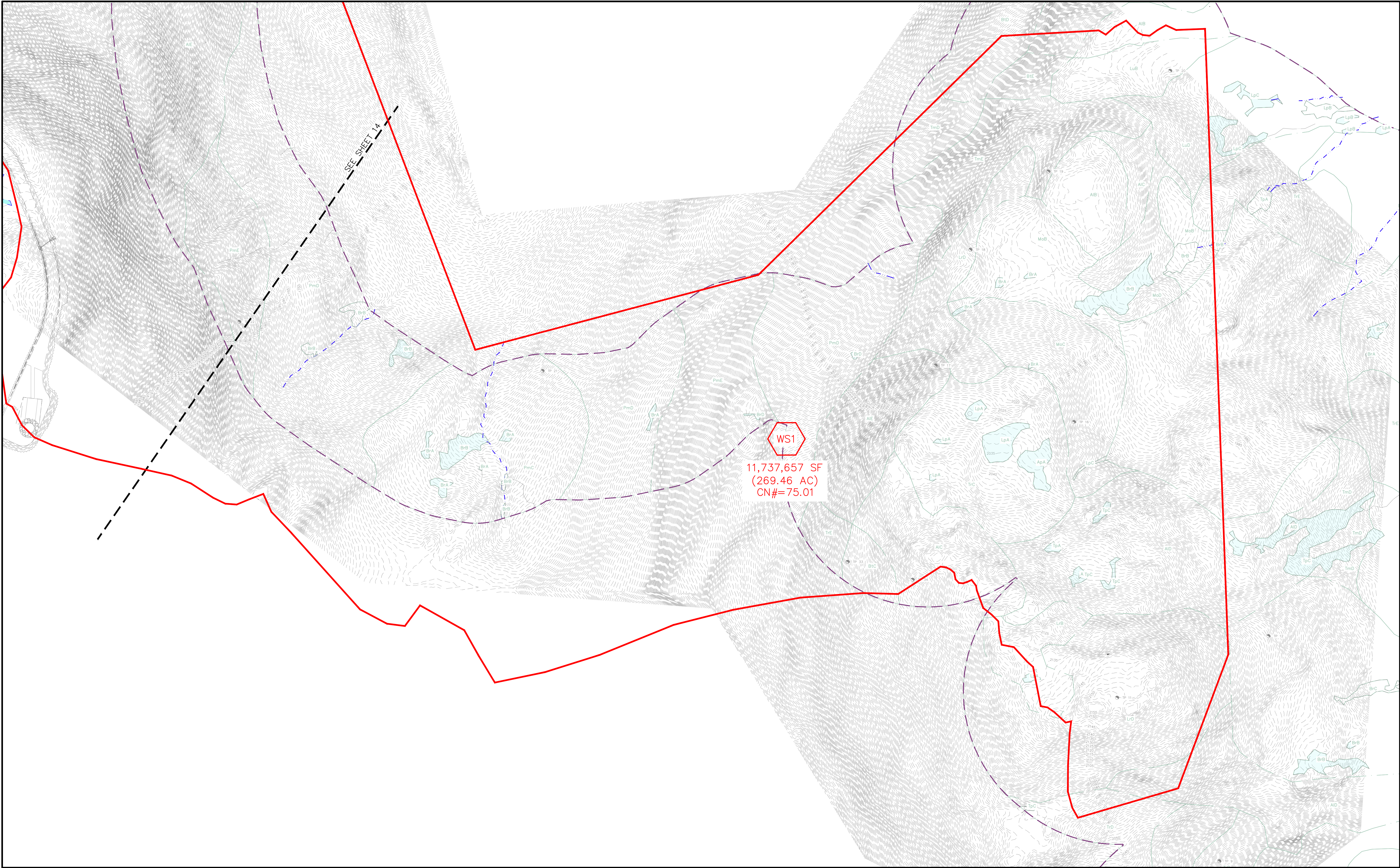


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Project No.		381.20.01		Phase		PERMIT	
Engineer		77 EXCHANGE ST SUITE 401 BANGOR, ME		Sheet No.		14	
Drawn By		SAW		Date		11/03/2023	
Designed By		JAO		Scale		AS SHOWN	
Project Location		RUMFORD, MAINE		Checked		BOH	
Drawing Description		EROSION AND SEDIMENTATION CONTROL PLAN AND NOTES		Approved		JAO	
TWIN ENERGY LLC		RUMFORD, MAINE		Checked		BOH	
Drawn By		SAW		Date		11/03/2023	
Designed By		JAO		Scale		AS SHOWN	
Project Location		RUMFORD, MAINE		Checked		BOH	
Drawing Description		EROSION AND SEDIMENTATION CONTROL PLAN AND NOTES		Approved		JAO	

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16

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LICENSED
PROFESSIONAL ENGINEER
11-03-2023

DESIGNED BY
JAO

DRAWN BY
SAW

CHECKED BY
JAO

DATE
11/03/2023

SCALE
AS SHOWN

APPROVED
JAO

DESCRIPTION
PRE-DEVELOPMENT STORMWATER PLAN

TWIN ENERGY LLC

RUMFORD, MAINE
Project Location
RUMFORD, MAINE
Drawing Description

Rev. #

Drawn By

Description

Date

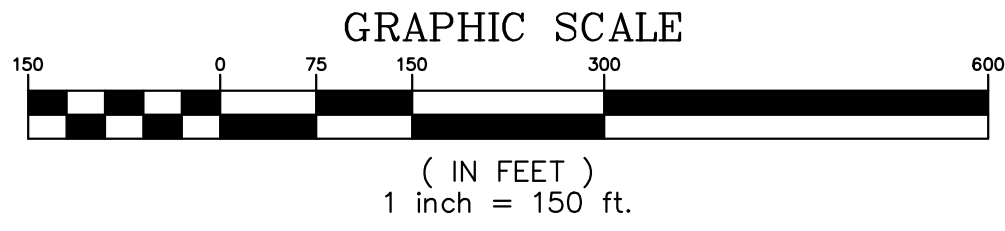
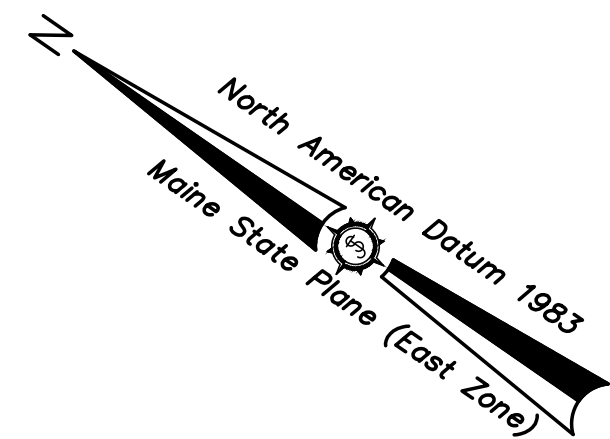


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			RUMFORD, MAINE Project Location RUMFORD, MAINE Drawing Description		Date 11/03/2023	Scale AS SHOWN	Approved JAO	Checked BOH		
			POST-DEVELOPMENT STORMWATER PLAN							