



**ROXUL<sup>TM</sup>**

## **RAN 5 PROJECT**

### **Storm Water Pollution Prevention Plan**

Roxul USA, Inc.  
Jefferson County, West Virginia

July 2017

## Revision Summary Log

Change No.	Description of Change	Date	Comments

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## 1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) controls storm water and sewer discharges through its National Pollutant Discharge Elimination System (NPDES) and provides guidance to municipalities, states and federal permitting authorities on how to meet storm water pollution control goals as flexibly and cost-effectively as possible. Construction activities that disturb more than three (3) acres during the life of the project, or are part of a larger common plan of development, are required to submit a Site Registration Form and prepare a Storm Water Pollution Prevention Plan (SWPPP) as part of the permit application. The EPA has delegated responsibility for implementation of these regulations to state agencies.

The West Virginia Department of Environmental Protection (WVDEP), Division of Water and Waste Management (DWWM) regulates storm water discharges through its West Virginia General Water Pollution Control Permit program. The regulations also require construction sites, disturbing more than one (1) acre of land, to prepare a storm water pollution prevention plan. The goal of this plan is to improve water quality by reducing pollutants in storm water discharges. Construction activities potentially produce many different kinds of pollutants that may adversely impact storm water.

The main pollutant of concern at construction projects is sediment, which can become entrained in storm water runoff following excavation and/or grading activities that remove protective vegetative cover. When the storm water runoff carrying these sediments reaches a lake or stream and slows down, the suspended sediments are deposited, which can choke the river channel or cover areas where fish spawn and aquatic plants grow. The particles also cloud waters causing aquatic respiration problems potentially resulting in the death of fish and plants in these ecosystems.

Construction activities may also involve the use of toxic or hazardous materials, including petroleum products, building materials, such as asphalt, sealants and concrete, and other chemicals that can be harmful to humans and aquatic life.

The objectives of this plan are:

- To identify potential sources of pollution that may be reasonably expected to affect the quality of storm water discharges associated with construction activities.
- To describe those practices, controls, and Best Management Practices (BMP) to be used to minimize storm water pollution.
- To assure compliance with the terms and conditions listed in the Permit.

The Thrasher Group, Inc., (Thrasher) has prepared this SWPPP for the Ran 5 Project to satisfy West Virginia (WV) SWPPP requirements for a new construction site disturbance. A Site Registration Application has been completed to obtain regulatory coverage through

the WV general permit for storm water discharges associated with oil and gas related construction activities.

Copies of the SWPPP will be maintained at Roxul field office.

Project Name

RAN 5 Project

Applicant

Roxul USA Inc.

Attention: Janusz Tchorzewski

Address: 4594 Cayce Road, Byhalia, MS 38611

Preparer

The Thrasher Group, Inc.

Attention: Robert Severt

Address: 600 White Oaks Boulevard, Bridgeport, WV 26330

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This SWPPP will be reviewed and amended during construction as necessary whenever there is a design change or process that could increase the exposure of construction materials to storm water, when a WVDEP representative determines that a modification to the SWPPP is necessary, or whenever there is a spill, leak, release, or unauthorized discharge from the site. Revisions to the SWPPP required as a result of a site inspection will be completed immediately. Reports, inspections, and certifications associated with this SWPPP and Groundwater Protection Plan (GPP) will be retained by Roxul for at least 3 years.

**Appendix B** presents a list of government agencies that may need to be notified if impacted storm water is released to a water way, if there is a non-storm water discharge event or if there is a spill/release of a hazardous material.

Thrasher conducted stream and wetland investigations for Ran 5 Project on July 17 and July 18, 2017. One (1) isolated palustrine emergent (PEM) wetland was identified during field investigations. Of the aquatic resources associated with the project's environmental area of interest (AOI), this wetland lies within the limits of disturbance but will not be impacted during construction.

Consultations and clearances from the WVDNR Wildlife Resources Section (rare, threatened and endangered species and sensitive habitats review), the State Historic

Preservation Office (Section 106 consultation) and the US Fish and Wildlife Service (Section 7 consultation) shall be obtained prior to construction.

### **1.1 Project Location**

The proposed Ran 5 Project Site is located in Jefferson County, WV within the Charles Town, Martinsburg, Middleway, and Shepherdstown USGS 7.5 minute quadrangle. The proposed site will be located at 365 Granny Smith Lane southeast of Kearnyesville, WV. Approximate center coordinates of the site are 39.375353°N, 77.877569°W as shown on the attached USGS Site Location Map, **Appendix A**.

### **1.2 Project Description**

This SWPPP covers site construction activities associated with the installation of the Ran 5 Project, its above ground related facilities and utility infrastructure. Construction activities associated with installation include but are not limited to: brush hogging and removing top vegetative cover, grading, filling, and compacting the proposed construction limits of disturbance (LOD) and associated activities to prepare the site.

The total area of disturbance will be approximately 99 (98.79) acres within the LOD. The proposed Ran 5 Project will consist of constructing the Roxul plant, support buildings, parking lots, upgrading an existing access road, and installing public utilities.

Vehicle access to the LOD will be granted through the use of an existing access road, to be upgraded as part of the proposed project.

### **1.3 Climate**

Annual precipitation in Jefferson County WV averages approximately 39 inches. Most of the precipitation originates as frontal storms, with some of it deposited as snow, or from thunderstorms.

From May through September, precipitation comes primarily from thunderstorms, with the preponderance of storms occurring from June through August. Thunderstorms occasionally produce intense showers that can deposit 1.5 inches or more of rain within a few hours. Flash floods sometimes occur in streambeds that are normally dry.

### **1.4 Soils**

There are three (3) soil types located within the area of disturbance for the Ran 5 Project site. The soil types exist in different layers which change from the surface layer to the depth where bedrock is present. The soils present within the project area of disturbance consist of a mixture of the following:

- Hagerstown silt loam, 3 to 8 percent slopes, very rocky

- Hagerstown silt loam, 8 to 18 percent slopes, very rocky
- Hagerstown-Rocky outcrop complex, 8 to 15 percent slopes

The soils in the project area are primarily well draining soil with no frequency of ponding and only some rare or occasional flooding. A soils map showing the entire area of disturbance is included in **Appendix D**.

### **1.5 Surface Water Drainages**

Surface water runoff and discharges from the site project area will be controlled by structural devices that slow runoff and cause ponding or direct runoff towards ditches to be controlled by diversions, rock check dams, silt fence, and sediment basins. Details of these features are shown on the Erosion & Sediment Control (E&S) Plans provided in **Appendix E**.

In compliance with the Clean Water Act (CWA), the WVDEP established water quality standards under Title 47CRS2. The water quality standards include designated uses, water quality criteria and anti-degradation policies. To maintain these standards, the WVDEP assigned specific tiers depending on the level of protection needed to maintain water quality and/or existing uses. A Tier 3 classification is given to protect outstanding national resource waters including Federal Wilderness Areas specifically designated federal waters, high quality waters, or naturally reproducing trout streams in state parks, national parks, and national forests. Thrasher conducted a desktop analysis to examine known stream classifications along the alignment. No Tier 3 streams were identified in the Ran 5 Project Site.

## **2.0 CONSTRUCTION ACTIVITY**

Construction of the Ran 5 Project Site is proposed to begin in September 2017 and the estimated construction completion will be April 2018.

Ran 5 Project has secured necessary agreements from private landowners whose property will contain the proposed site. The site construction will include the following activities listed below:

- Clearing, grading and stockpiling of top soil;
- Backfilling and compacting;
- Cleanup, grading, surface roughening, and seeding.

Earthmoving activities will be limited to the proposed LOD as presented in the enclosed plans and detail drawings. Disturbed areas have been limited to the proposed LOD necessary for the excavation of the proposed site development, access road, and to minimize aquatic impacts to the least amount practical. Earthmoving will also be limited

appropriately for weather conditions, specifically during rainfall events. Topsoil will be segregated in agricultural, wetland, and residential areas. Disturbed areas will be permanently stabilized upon completion of construction. All revegetation of disturbed areas associated with this Project will be completed in accordance with the E&S Plans and BMP Technical Installation Details provided in **Appendix D**.

Storm water outfalls, drainage control within the LOD, and materials handling, loading and storage areas are described in the following sections.

### **2.1 Location of Storm Water Outfalls**

Local drainage for the majority of the site is directed via topographic changes and drainage ditches as shown on the USGS Site Location Map **Appendix A** and Erosion and Sediment Control Plan, **Appendix D**. Storm water draining away from the site is expected to leave the project area through storm water erosion controls such as diversions, rock check dams, silt fence, rock outlet protection, and through small drainage channels. The storm water runoff will then flow through stabilized, well vegetated grass swales or into a sediment basin.

### **2.2 Drainage Control within the LOD**

Diversions, rock check dams, silt fence, erosion control matting and diversionary earthen berms will be used to prevent or control storm water running onto the project area. Structural control measures will be used to protect slopes and dissipate erosive energy along hill slopes, and shoulders of access roads to prevent excess sediment runoff.

During construction of the site, engineering controls and work practices will be employed to prevent potential storm water impacts resulting from erosion of excavated materials or chemical impacts due to storm water coming into contact with construction materials, fuel products or equipment. Low-lying areas within the LOD will collect storm water runoff and create small water bodies. Within these areas storm water will be allowed to evaporate, infiltrate and flow through erosion control devices into vegetated drainage channels. Sediment will be maintained within the LOD by the use of diversions, compost filter sock, silt fence, and erosion control matting.

### **2.3 Materials Handling, Loading, and Storage Areas**

Materials handling, loading, and storage areas will be located away from natural storm water drainages or surrounded with earthen berms to prevent storm water impact. Construction materials and chemical storage will be kept covered with secondary containment practices implemented where applicable to prevent storm water impacts.

Small amounts of storm water impounded within secondary containment structures are expected to be lost through evaporation. Ran 5 Project or approved subcontractor

personnel will inspect large accumulations of storm water, and if no impacts are observed (e.g., oil sheens, oil skims, or other evidence of chemical impact) within the secondary containment, the storm water will be allowed to evaporate. If the impounded storm water exhibits signs of impact, such as sheen waters or oil skim, then the storm water will be properly disposed of offsite by a vacuum truck contractor and documented on the Secondary Containment Drainage log contained in **Appendix E**.

### **3.0 POTENTIAL POLLUTION SOURCES**

The following is a description of potential sources of pollutants to storm water discharges.

During construction, possible contaminants include diesel fuel, hydraulic oil, and antifreeze, all being components of machinery on site. Common de-icing chemicals may be used during winter months. Vehicles may also leak motor oil, unleaded gasoline, antifreeze, and transmission fluid.

### **4.0 GROUNDWATER PROTECTION PLAN**

The following section provides a description of BMPs including physical structures, employed to protect groundwater resources. The use of a combination of physical BMPs, good work practices, and storing fuels, chemicals, and materials in covered and isolated areas will prevent groundwater impacts.

#### **4.1 Introduction**

While the USEPA has enacted federal laws for general groundwater protection on a national basis such as the Safe Drinking Water Act, individual states in cooperation with local governments are responsible for implementing specific and locally focused groundwater protection strategies. Thrasher has prepared this GPP in accordance with the requirements of the WV Groundwater Protection Rule, 47 C.S.R. 58 § 4.11 and the General Water Pollution Control Permit (Permit No. WV-116815). The Groundwater Protection Rule was promulgated by the WVDEP, DWWM and became effective on June 1st, 1994. The General Water Pollution Control Permit is also under the purview of the WVDEP-DWWM, and became effective on June 12th, 2013. The General Water Pollution Control Permit does not require that the GPP be submitted to the DWWM for review, but a copy of this document must be prepared and kept on the project site.

Construction activities potentially produce many different kinds of pollutants that may adversely impact groundwater. These activities may involve the use of hazardous materials, including petroleum products, building materials such as asphalt, sealants and concrete, and other chemicals that can be harmful to humans and aquatic life.

The objectives of this Plan are:

- 1.0 To identify potential sources of pollution associated with project construction that may be reasonably expected to affect the quality of storm water discharges associated with project construction, and subsequently adversely impact groundwater.
- 2.0 To describe those practices, controls, and Best Management Practices (BMPs) to be used to minimize groundwater pollution.
- 3.0 To ensure compliance with the terms and conditions listed in the Construction Storm water Permit and Groundwater Protection Rule.

Thrasher has prepared this GPP for the Ran 5 Project to satisfy the requirements of the West Virginia Groundwater Protection Rule and Construction Storm water General Permit. Copies of this GPP will be maintained at the field office.

Project Name and Location

Ran 5 Project

Jefferson County, West Virginia

Lat: N 39.375353 & Long: W -77.877569 for the center of the project site

Owner/Operator

ROXUL USA Inc.

4594 Cayce Road

Byhalia, MS 38611

Project Contact

The Thrasher Group, Inc

c/o Robert Milne, Project Manager

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This GPP will be reviewed and amended during construction as necessary whenever there is a LOD design change or process that could increase the exposure of construction materials to groundwater, or whenever there is a spill, leak, release, or unauthorized discharge from the Site. Any revision to the GPP required as a result of a site inspection will be completed immediately. All reports, inspections, and certifications associated with this GPP will be retained by Roxul for at least 3 years.

## 4.2 Existing Groundwater Quality

Jefferson County is within a prevalent karst area. Additionally, it does have bedrock units which appear to be conducive to yielding sufficient quantities of water for industrial or public use. There are two public drinking water wells within 2,000 feet of the property. Both are located to the southwest. Fox Glen utilities and North Jefferson Elementary own the wells. Both wells are up gradient of our site and appear to be unaffected by site activities. Well Head and Source Water protection areas are unknown. The project site location's immediate receiving streams are tributaries of Shaw Run and Opequon Creek, located in the Potomac River Watershed.

The soils located within the area of disturbance for the site consist of silt loams. The soils in this area are primarily well draining soils with a moderate to slow infiltration rate. A soils map showing the entire area of disturbance is included in **Appendix C** of the SWPPP.

## 4.3 Operations That May Potentially Contaminate Groundwater Resources

Project construction is scheduled to begin in September 2017 and finish in April 2018. Construction activities that could affect or contaminate ground water resources include:

- Stockpiling of top soil;
- Potential leakage of fuel or engine fluids from heavy equipment used for clearing, grading, compacting, installation, and backfilling the site;
- Onsite fuel tanks and mobile refueling;
- Equipment staging and material laydown areas

There is some potential that any of the above activities could contaminate soil and groundwater in the project area. The BMPs described in Sections 4.0 and 5.0 were designed to control the release of contaminants to the ground surface and groundwater supply. Therefore, only minor discharges associated with operating heavy machinery (e.g. an accidental release of brake fluid) are anticipated.

## 4.4 Procedures Designed to Protect Groundwater from Potential Contamination

The following section provides a description of BMPs -- including physical structures -- employed to protect groundwater resources. The use of a combination of physical BMPs, good work practices, and storing fuels, chemicals, and materials in covered and isolated areas will prevent groundwater impacts.

### Construction activities

During project construction, engineering controls and work practices will be employed to prevent potential groundwater impacts resulting from chemical impacts due to storm water coming into contact with construction materials, fuel products or equipment. Low-lying



areas within the ROW will collect storm water runoff and create small water bodies. Within these areas storm water will be allowed to evaporate, infiltrate and flow through erosion control devices into vegetated drainage channels.

#### Materials Handling

Materials handling, loading, and storage areas will be sited away from natural storm water drainages. Construction materials and chemical storage containers (including drip pans placed under equipment fill ports during fueling activities) will be kept covered with secondary containment practices implemented where applicable to prevent groundwater impacts.

Small amounts of storm water impounded within secondary containment structures are expected to be lost through evaporation. Roxul or approved subcontractor personnel will inspect large accumulations of storm water, and if no impacts are observed (e.g., oil sheens, oil skims, or other evidence of chemical impact) within the secondary containment, the storm water will be allowed to evaporate. If the impounded storm water exhibits signs of impact, such as a sheen or oil skim, then the storm water will be properly disposed of offsite by a vacuum truck contractor and documented on the Secondary Containment Drainage log.

#### Equipment Cleaning and Maintenance Activities

Cleaning and maintenance of equipment will not take place within 50 feet of aquatic features. Additionally, these activities will take place within designated containment areas in order to prevent products from entering the groundwater.

#### Sumps/Tanks Carrying Contaminants

Sumps and tanks will not be located within or adjacent to any aquatic features and will be located in areas equipped with secondary containment.

### **4.5 Potential Pollution Sources and Proposed Best Management Practices**

**Section 3** provides a description of potential materials/pollutants that will be on site during construction. Some of these materials contain potential pollutants that may become associated with groundwater contamination. The table below shows the materials, potential pollutants associated with the materials and the BMPs that will be used on-site to prevent the possible discharge of pollutants. Below is a description of the procedures and facilities used to protect groundwater quality from the list of potential contaminating sources mentioned in **Section 3**.

Necessary actions will be taken in order to avoid spills during construction. The contractor will have the necessary absorbents on hand to secure any of the possible contaminants in the event of a spill. Federal, state, and local rules and regulations will be followed in the

disposal of any captured spills. Compost filter sock sediment traps/with pipe slope drains to discharge water, clean water diversion ditches, and compost filter sock around the perimeter of the fill slopes will be utilized to prevent sedimentation and erosion. Best Management practices will be utilized on site and maintained during construction as indicated on the Erosion and Sediment Control Plans. These BMPs are also applicable to the General Water Pollution Control Permit - which regulates storm water, and the 404 Program under the Clean Water Act, which regulates streams and wetlands.

#### **4.6 Conditions**

The following conditions apply under the Groundwater Protection Rule (47 C.S.R. 58 § 4.11):

- No wastes should be used for deicing, fills, etc., unless provided for in existing regulations.
- All employees shall be instructed and trained on their responsibility to ensure groundwater protection. Job procedures shall provide direction on how to prevent groundwater contamination.
- Inspections shall take place every seven days as part of the storm water requirements. Storm water inspections will ensure that all elements and equipment associated with the GPP are in place, properly functioning, and appropriately managed.

#### **5.0 STORM WATER MANAGEMENT CONTROLS**

The following sections provide a description of BMPs including physical structures, employed to prevent soil erosion, work practices and managerial controls used to prevent storm water impacts, and fuels, chemicals, and materials handling practices. The use of a combination of physical BMPs, good work practices, and storing fuels, chemicals, and materials in covered and isolated areas will prevent storm water impacts.

Storm water management controls include both structural controls and non-structural controls, as summarized below and in the following sections.

##### **Structural Controls**

- Soil erosion and sediment controls – including barriers on the leeward side of excavated materials, stabilization of storm water outfalls, and installation of berms to divert storm water from the outfalls, sediment barriers installed on both sides of wetland and stream crossings and stabilized construction entrances (where applicable);
- Dust control measures;

- Construction site housekeeping;
- Final stabilization.

#### Non-Structural Controls

- Development of a SWPPP document and establishing a SWPPP Team;
- Providing employee training;
- Recordkeeping and reporting; and,
- Revisions to the SWPPP.

Other non-structural controls include:

- Implementing storm water controls before beginning construction;
- Considering wind direction, soil types, topography and drainage features in project design;
- Prohibiting or modifying work practices that may cause or increase erosion; and,
- Scheduling work for times of the year or times of the day when precipitation is less likely.

### **5.1 Soil Erosion and Sediment Controls**

The Erosion and Sediment (E&S) control measures for construction activities consist of compost filter sock, silt fence, diversions, erosion control matting, temporary/permanent seeding, and mulching. BMP technical installation details and standards can be found in **Appendix D**. Straw/hay bales will not be used as an E&S control.

### **5.2 General Construction Sequence**

#### **PHASE 1 CONSTRUCTION SEQUENCE**

1. Locate all existing utilities. The contractor shall notify miss utility of West Virginia at 1-800-245-4848 a minimum of two (2) days prior to any excavation or construction.
2. Install all perimeter and erosion and sediment controls (silt fence, super silt fence, diversions, basins, traps, inlet protection, stabilized construction entrance, etc.).
3. Remove and dispose of all material not suitable for fill: brush, brush, logs, debris, etc.
4. Strip and stock topsoil for reuse in finish grading.
5. Excavate and rough grade roads and pad.
6. Install storm drains and roc outlet protection.
7. Complete find grading. All disturbed areas shall be dressed to a neat and finished appearance and stabilized with seed and mulch or stone.
8. After complete stabilization o the drainage area, remove erosions an sediment control facilities and dress and stabilize as required.
9. Convert detention basin to permanent storm water basin.
10. Final project clean up and demobilization.

**Note:** inspections of erosion and sediment controls will occur at least once every seven calendar days and within 24 hours after any storm event greater than 0.5 inches per 24 hour period. Any required repairs or maintenance should be made immediately. Temporary BMPs will be removed upon achieving vegetative stabilization (70% site revegetation).

### **5.3 General BMP Installation Sequence**

- A rock construction entrance shall be provided at all locations where construction traffic will be accessing a paved road directly from a disturbed area.
- Temporary sediment barriers, including appropriately sized silt fence will be placed downslope of work areas and around soil stockpiles, as needed.
- Stockpile slopes will be two to one or flatter, and stockpiles will not exceed 35 feet in height.
- Appropriately sized fencing will be placed around wetlands and water bodies in and adjacent to the work area prior to any construction activities.
- Site dewatering, if needed, will be conducted using a pump and hose. Water will be released into a filter bag that will be located in a well-vegetated upland area.
- For three to one or steeper slopes, the disturbed area will be vertically tracked. Erosion control fabric will be installed.
- Temporary sediment barriers will be maintained, until vegetation has become established with a uniform coverage of density of 70 percent or more within the LOD. Once this coverage has been obtained, appropriate controls will be removed from the work area. Areas disturbed during the removal of the erosion controls will be stabilized immediately. The 70 percent requirements refers to the total area vegetated and not a percent of the site.
- All waste material will be transported off-site for recycling and/or disposal. Where feasible, construction waste materials will be recycled (i.e., used for silt fence, filter bags, etc.) or will be taken to the nearest Roxul facility or an approved disposal facility for disposal. As stated previously, excess soil material, if any will be spread and re-vegetated within the LOD. Off-site spoil and/or borrow sites must be operated under a current national pollutant discharge elimination system (NPDES) permit.

- Erosion control blankets shall not be installed on agricultural areas even if slopes are steeper than three to one. These areas may require special attention/restoration until adequate growth is achieved.
- Temporary stockpiles need silt fence / sock placed adjacent to LOD.
- Contractor is expected to minimize disturbance within the LOD.

This section describes physical erosion and sediment controls to be used for the construction of the Ran 5 Project to minimize sediment impacts to storm water runoff. All control measures will be properly selected, installed and maintained in accordance with manufacturer's specifications and good engineering practices. BMP Technical Installation Details are provided in **Appendix D**.

#### **5.4 Dust Control**

Wind is capable of causing erosion, particularly in dry climates or during the dry season. Wind erosion can occur where surface soil is loose and dry. Wind erosion may also occur in areas where vegetation is sparse or absent, and can transport sediments to where they can be washed into receiving waters during the next storm event or snowmelt runoff. None of the soil deposits in the project area are found to be susceptible to wind erosion.

The excavated top soil, ground cover, and overburden materials will be stockpiled for reuse once construction is completed. The stockpiles will be laid out perpendicular to the predominant wind direction where possible and practical.

#### **5.5 Final Stabilization**

Areas which have been disturbed are considered to be stabilized when a uniform vegetative cover with a density of 70 percent of the pre-disturbance levels has been established. Once sections of the construction are completed and the surface is compacted, topsoil will be replaced over the disturbed area, the LOD will be disked as a surface roughness BMP, and the surface will be re-seeded. Some segments may have special landowner seeding requirements/agreements.

The WVDEP has recommended types of seed mixtures for stabilization of disturbed areas. Refer to **Appendix D** details.

Erosion control blanketing (either rolled or sprayed) shall be installed or applied for slopes 3h: 1v or steeper, within 50 feet of surface water, or where soil conditions indicate blanketing is needed to achieve the required vegetative cover. See E&S Details.

Sprayed on mulches and other slope stabilization materials may be used in combination with seeding techniques in select areas to promote and establish surface vegetation cover. Access roads, material storage yards, meter stations and other work areas will be stabilized with the use of permanent, physical erosion reduction methods that include, but are not limited to:

- Surface hardening – covering of the soil surface with hardened products such as concrete or asphalt pavement.
- Gravel surfacing – gravel surfacing will be applied in areas such as access roads, materials storage yards, and other work surfaces. Gravel surfaces will be replaced or repaired (through grading) when inspection reveals that the gravel surface is no longer effectively covering the soil surface.

If/when/where applicable, any stream that has been disturbed by the installation of the access road will be restored by stabilizing the stream banks with erosion control blankets and vegetation. For wetland disturbances, the top six to twelve inches of topsoil in wetland areas will be segregated and side cast temporarily during excavation, except in areas of standing water or saturated soils. Once the construction activity is completed, topsoil will be replaced in its original layer. This measure will be undertaken to preserve the wetland seed bank in the soils.

The approximate original contours of the Project site will be maintained or replicated; insuring the preservation of the pre-construction drainage pattern and features; and the disturbed areas will be revegetated or otherwise stabilized with pervious material.

Once the construction of the project is completed, and final stabilization is achieved, there should be little exposure for impacts to storm water. Ran 5 Project or approved subcontractor personnel will monitor/observe for areas exhibiting signs of excessive erosion during routine inspections of the project area. Any areas exhibiting excessive erosion will need erosion control maintenance. Vehicle traffic along access roads may also result in erosion.

A Notice of Termination (NOT) form will need to be filed with WVDEP following completion of the site construction, final stabilization of all disturbed areas, and removal of all temporary erosion and sediment control measures. The NOT will end the project's coverage under the NPDES General Permit for Stormwater. The project has reached final stabilization when all soil disturbing activities are complete and a uniform perennial vegetative cover with a density of 70% has been established across the site. Areas that have permanent stabilization through the use of riprap, gabions, geotextiles, etc. will count towards the 70% final stabilization requirement. All temporary erosion and sediment control measures should be removed 30 days after the site has reached final stabilization or these measures should be scheduled to be removed at an appropriate time that is

agreed upon with the WVDEP. The temporary measures can also be removed when they are no longer needed if the disturbed areas, treated by the measures, are stabilized prior to the project completion.

## **5.6 SWPPP Team**

### SWPPP Team Administrator

The SWPPP Team Administrator will be Janusz Tchorzewski who will be responsible for:

- Dedicating the necessary financial and human resources to implement the SWPPP;
- Implementing spill response clean ups;
- Assigning and working with the SWPPP Team Coordinator and other subcontractor lead managers;
- Signatory authority.

### SWPPP Team Coordinator

The SWPPP Team Coordinator is responsible for:

- Notifying the SWPPP Administrator of any spills;
- Coordinating various stages of Plan development and implementation;
- Coordinating employee training and conducting inspections;
- Implementing and improving housekeeping measures;
- Coordinating the implementation of the preventive maintenance program;
- Maintaining all records.

## **5.7 Employee Training**

The SWPPP Team Coordinator will conduct quarterly training to address the areas listed below:

- Purpose and Requirements of the Storm Water Permit;
- Components of the SWPPP and Storm Water Regulations;
- BMPs and Maintenance, Good Housekeeping Procedures;
- Inspections, Record Keeping and Reporting;
- Storm Water & Non-Storm Water Discharges; and,
- Changes to the SWPPP
- Inspections & Precipitation greater than 0.5-inch per 24-hour period

Records of the training, including the topics discussed, attendees, and an evaluation of BMPs in use will be maintained by Roxul for a minimum of three years. An Employee Training Log is provided in **Appendix F**.

## 6.0 INSPECTION AND MAINTENANCE PROCEDURES

To meet requirements of the Storm Water Permit Number No. WV0116815, inspection and maintenance of E&SCs must occur during the project. Continued inspection and maintenance is required for specific structures after construction is completed. Inspections will also identify potential sources of pollutants that could impact storm water discharge.

The inspection program will include the following:

1. A trained and qualified person familiar with the SWPPP and storm water controls will conduct LOD inspections by completing the Roxul Erosion & Sediment Control Report in **Appendix G**. Documentation of training completion will include signing the training log provided in **Appendix F**.
2. Inspections will cover these areas:
  - Disturbed areas without stabilization, slopes and berms;
  - Material storage areas;
  - BMPs;
  - New access roads and ditches, horizontal boring activities; and,
  - Locations where vehicles enter or exit the site;
  - Areas reclaimed but not vegetated;
  - Equipment and material staging areas.
3. Inspections will occur at least once every seven (7) calendar days and within 24 hours after any storm event greater than 0.5 inches per 24 hour period. Any required repairs or maintenance should be made immediately.
4. A log of inspections will be completed and maintained by Roxul.
5. Disturbed areas and material storage areas that are exposed to precipitation will be inspected for evidence of pollutants leaving the property boundary.
6. LOD BMPs.
7. Roads used for vehicle access will be inspected for evidence of off-site sediment transport.
8. The results of the inspections will be used to update and revise the list of potential pollutant sources identified in Section 3.1.
9. The SWPPP will be modified as necessary whenever there is a change in design, construction or operation that changes the potential for pollutant discharge to waters of the state. Actions taken to modify storm water control measures will be recorded and maintained with the SWPPP.



10. Logs of sediment control inspection must be kept with the inspectors construction records and include date, time, and condition of BMPs and any necessary maintenance. The Roxul Erosion & Sediment Control Inspection Report is included in **Appendix G**.
11. Temporary E&S control BMPs should be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed (70% site revegetation). Trapped sediment shall be removed or stabilized on-site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.
12. Whenever inspection and/or monitoring reveals that the BMPs identified in the E&SC Plans are inadequate, the E&SC Plans shall be modified, as appropriate, in a timely manner.
13. Maintenance of the E&SC Plans - the E&SC Plans shall be retained on-site. The E&SC Plans shall be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP.

Maintenance will include prompt repairs and/or adjustments to erosion and sediment control structures that are deteriorating or found to be performing inadequately. Repairs should be made immediately or designated contractor(s) will maintain on-site materials necessary to make any reasonably expected repairs such as diversions, compost filter sock, silt fence, and erosion control matting.

## **7.0 RECORDKEEPING PROCEDURES**

Records of project inspections, spills, and maintenance activities will be maintained and located at the Roxul office. If a reportable spill of petroleum hydrocarbons occurs, a Spill Report Form will be completed and reported. Records and reports are required to be maintained for a period of at least three years.

## **8.0 NON-STORM WATER DISCHARGES**

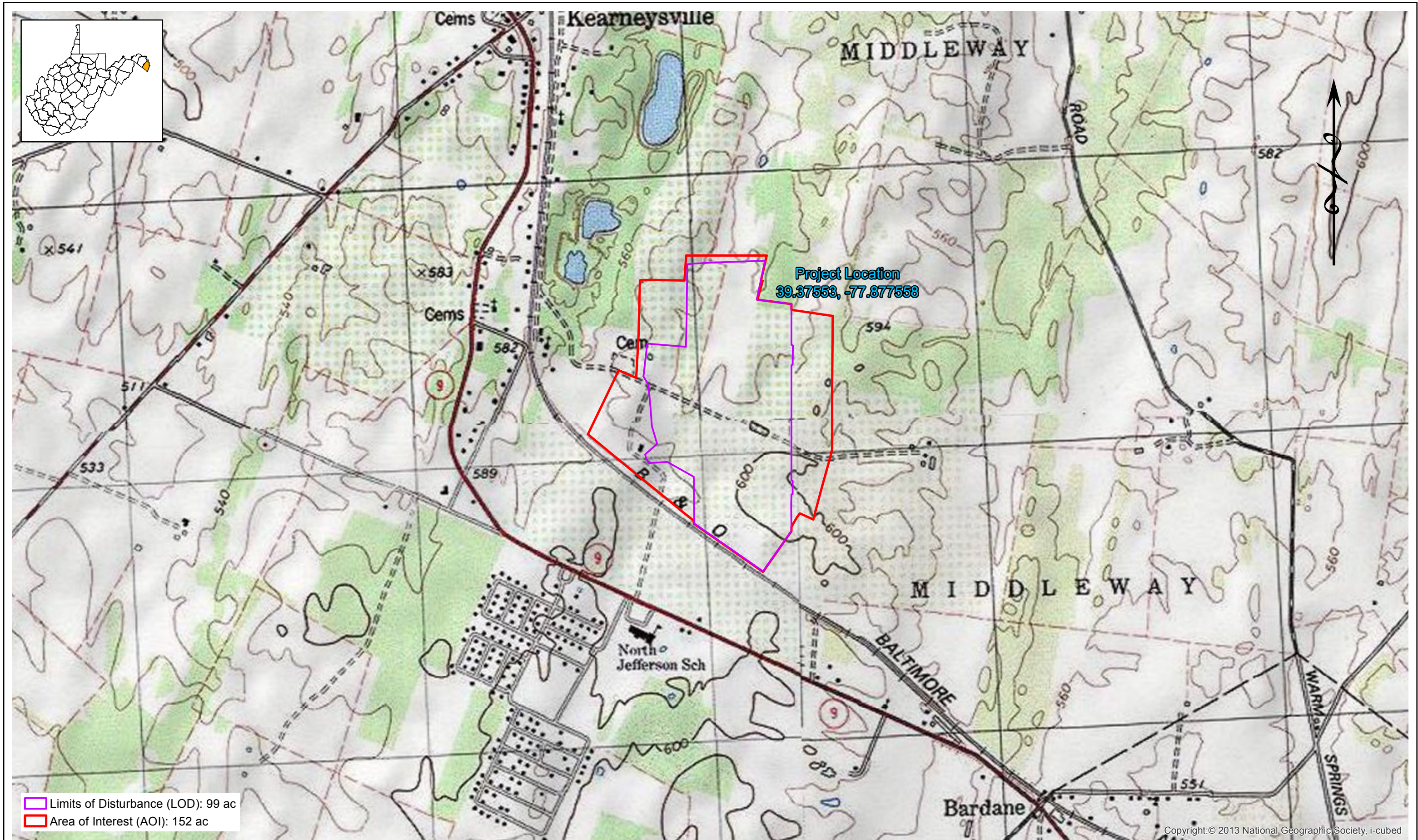
Non-storm water discharges are not expected from construction activities. Possible exceptions include fire prevention/suppression activities and potable water used for dust control.

## **APPENDIX A**

### **USGS SITE LOCATION MAP**



Document Path: R:\030-3203-SITE ENGINEERING-ROCKWOOL INTERNATIONAL\GIS\Delination\MXD\Fig1\_SiteLoc\_Ran5Project.mxd



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No.	By	Date	Description

Roxul USA, Inc.

Scale: 1 inch = 1,000 feet  
Quad: Charles Town, Martinsburg, Middleway, and Shepherdstown

Drawn By: egreaser Date: 7/28/2017  
Surveyed By: LWJG Date: 7/17-18/2017  
Field Book No.:

THRASHER

Phase No.
Contract No.
Project No. 101-030-3203

Figure 1: Site Location  
Ran 5 Project  
Jefferson County - West Virginia

Sheet No.



## **APPENDIX B**

### **NOTIFICATION OF PUBLIC SAFETY OFFICIALS AND GOVERNMENT AGENCIES**

**NOTIFICATION OF OUTSIDE PARTIES**  
**PUBLIC SAFETY OFFICIALS AND GOVERNMENT AGENCIES**

Ran 5 Project

**PUBLIC SAFETY NOTIFICATION**

Ambulance .....	911
Fire .....	911
Law Enforcement .....	911

**GOVERNMENT AGENCY NOTIFICATIONS - VERBAL**

National Response Center .....	<b>1-800-424-8802</b> (24 hr/day-7 days/week)
--------------------------------	--

**GOVERNMENT AGENCY NOTIFICATIONS - WRITTEN**

**Report spills that have reached state waters to:**  
West Virginia Department of Environmental Protection  
Environmental Health Section..... (304) 328-5210 or 5166

National Response Center..... (800) 424-8802 (24-Hour)  
c/o United States Coast Guard (G-OPF) Room 2611 ..... (202) 267-2675  
2100 2<sup>nd</sup> Street, Southwest  
Washington, D.C. 20593-0001

## **APPENDIX C**

### **SOILS MAP**



Document Path: R:\030-3203-SITE ENGINEERING-ROCKWOOL INTERNATIONAL\GIS\Delineation\MXD\Fig3\_SoilTypes\_Ran5Project.mxd



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No.	By	Date	Description	

Roxul USA, Inc.

Scale: 1 inch = 400 feet

Quad: Charles Town, Martinsburg, Middleway, and Shepherdstown

Drawn By: egreaser Date: 7/28/2017

Surveyed By: LW/JG Date: 7/17-18/2017

Field Book No.:

THRASHER

Phase No.
Contract No.
Project No.
101-030-3203

Figure 3: Soil Types

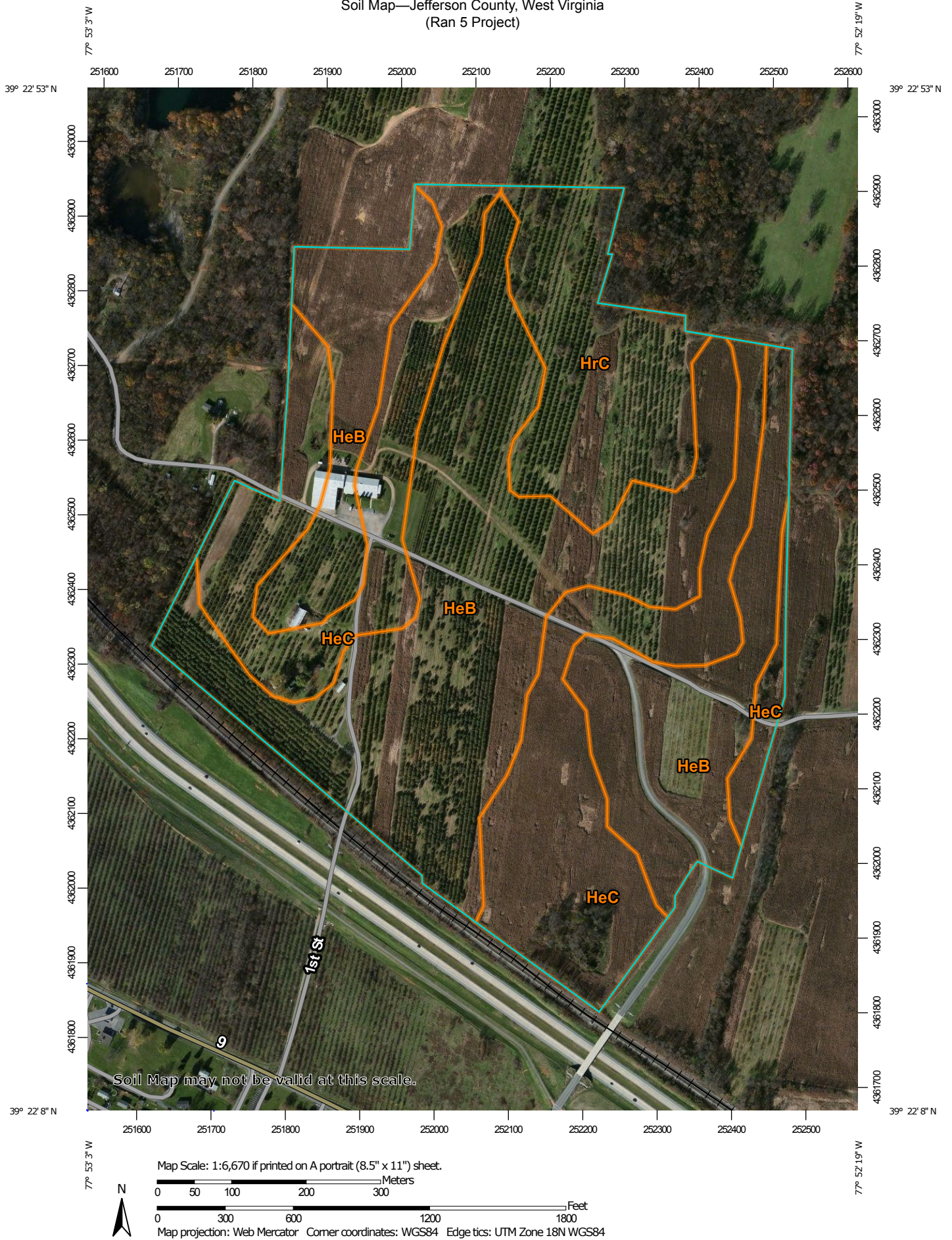
Ran 5 Project

Jefferson County - West Virginia

Sheet No.
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Soil Map—Jefferson County, West Virginia  
(Ran 5 Project)






# Soil Map—Jefferson County, West Virginia (Ran 5 Project)

## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, West Virginia

Survey Area Data: Version 10, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Nov 6, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

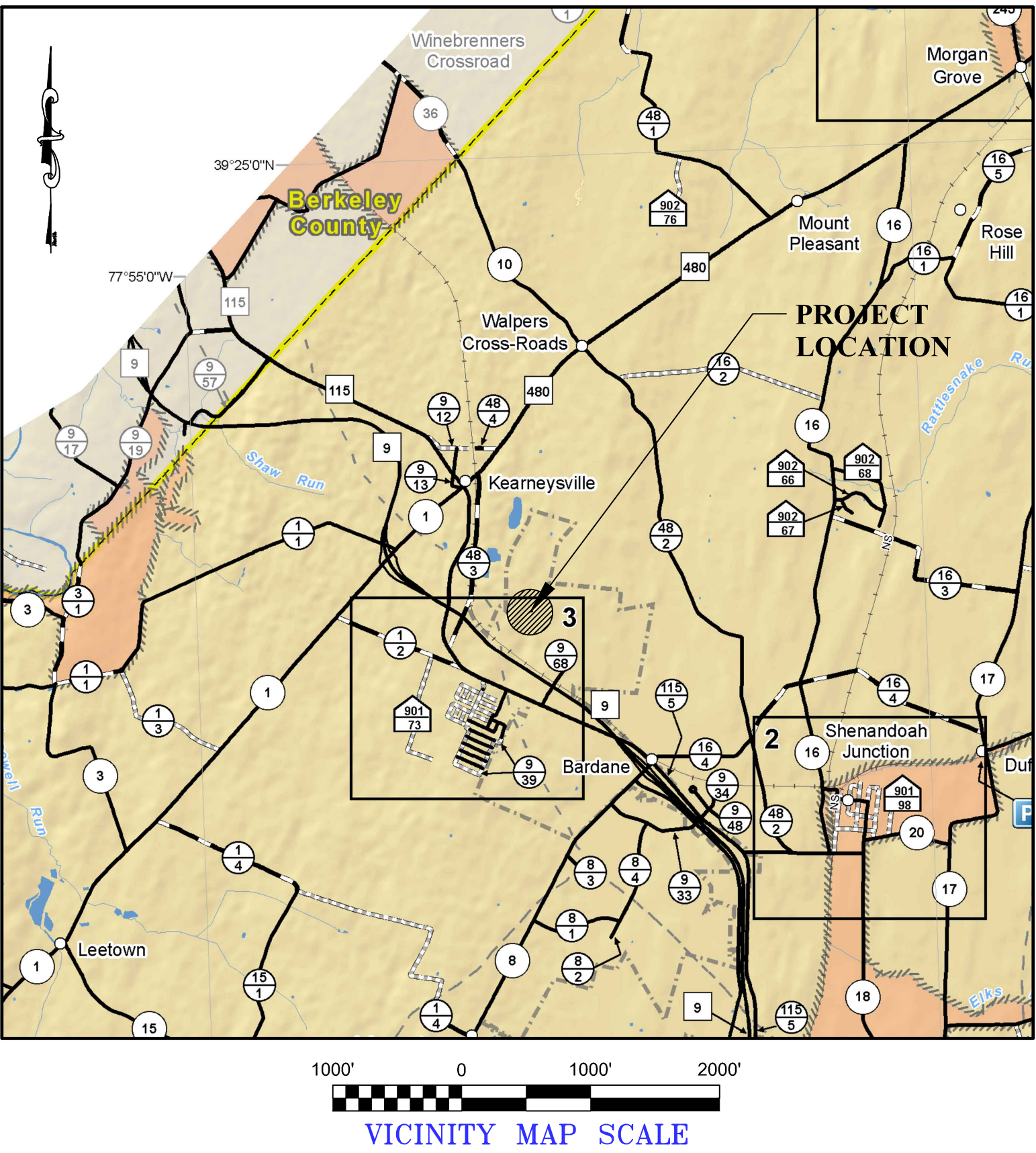
## Map Unit Legend

Jefferson County, West Virginia (WV037)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HeB	Hagerstown silt loam, 3 to 8 percent slopes, very rocky	84.0	55.1%
HeC	Hagerstown silt loam 8 to 15 percent slopes, very rocky	48.5	31.8%
HrC	Hagerstown-Rock outcrop complex, 8 to 15 percent slopes	19.9	13.0%
<b>Totals for Area of Interest</b>		<b>152.4</b>	<b>100.0%</b>

## **APPENDIX D**

### **E&S PLANS INCLUDING BMP INSTALLATION DETAILS**

ROXUL USA INC.  
RAN 5 PROJECT  
GRADING AND E&S PLAN  
JEFFERSON COUNTY, WV  
JULY 2017



ONE CALL UTILITY SYSTEM CONTACT INFO



CONTRACTOR SHALL NOTIFY THE ONE-CALL SYSTEM OF THE INTENDED EXCAVATION OR DEMOLITION NOT LESS THAN FORTY-EIGHT (48) HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL FEDERAL OR STATE HOLIDAYS, NOR MORE THAN TEN (10) WORK DAYS PRIOR TO THE BEGINNING OF SUCH WORK.



SHEET INDEX

SHEET	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES
3	QUANTITIES
4	EXISTING CONDITIONS
5	OVERALL SITE PLAN
6-10	DETAILED SITE PLANS
11	GRADING PLAN
12	STORMWATER PLAN
13	SITE PROFILES
14-17	SITE CROSS-SECTIONS
18-19	STORMWATER PROFILES
20	SETTLING/REUSE POND DETAILS
21	SEDIMENT BASIN #1 DETAILS
22	SEDIMENT BASIN #2 DETAILS
23	WATERSHED MAP
24-28	DETAILS

☐ APPROVED FOR PERMITS

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

☐ APPROVED FOR BIDS

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

☐ APPROVED FOR CONSTRUCTION

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

REVISION NUMBER	REVISED SHEETS	BY	DATE	DESCRIPTION



THE THRASHER GROUP, INC.

600 WHITE OAKS BOULEVARD - BRIDGEPORT, WV 26330  
PHONE (304) 624-4108•FAX (304) 624-7831

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GENERAL NOTES

1. ANY CONSTRUCTION METHOD OR MATERIAL THAT IS NOT COVERED IN THESE CONTRACT DOCUMENTS WILL BE COVERED BY WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS, ROADS AND BRIDGES, ADOPTED 2010 AND THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, SUPPLEMENTAL SPECIFICATIONS LATEST EDITION, STANDARD DETAILS VOLUME I DATED JANUARY 1, 2000 AND VOLUME II DATED JANUARY 1, 1994. THE CONTRACT DOCUMENTS AND CONTRACT PLANS ARE THE GOVERNING PROVISIONS APPLICABLE TO THIS PROJECT.
2. THE CONTRACTOR SHALL LOCATE AND PROTECT EXISTING UTILITIES AND FACILITIES FROM DAMAGE BY EQUIPMENT OR PERSONNEL. THE CONTRACTOR SHALL CONTACT ALL UTILITY AND FACILITY AGENCIES FOR FIELD MARKING PRIOR TO BEGINNING CONSTRUCTION. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE EXISTING UTILITY INFORMATION IS THE BEST AVAILABLE AND MAY NOT BE COMPLETELY ACCURATE OR REPRESENTATIVE OF ACTUAL CONDITIONS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR TO THE UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR OWNER IN WRITING, OF ANY EXISTING DAMAGED UTILITIES PRIOR TO BEGINNING CONSTRUCTION. ANY UTILITIES OR FACILITIES DAMAGED DURING THE PROJECT BY THE CONTRACTOR OR EQUIPMENT SHALL BE PROMPTLY REPAIRED AT THE CONTRACTOR'S EXPENSE. HAND DIGGING TO PROTECT UTILITIES FROM DAMAGE SHOULD BE ANTICIPATED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A VALID WEST VIRGINIA CONTRACTOR'S LICENSE AND PAYING ALL APPLICABLE STATE AND LOCAL TAXES.
4. ALL PERMITS MUST BE SECURED PRIOR TO CONSTRUCTION. THESE PERMITS WILL BE ACQUIRED BY THE OWNER UNLESS OTHERWISE NOTED.
5. IN THE EVENT AN ERROR WITH THE PLANS SEEMS APPARENT, THE MATTER MUST BE TAKEN UP WITH THE ENGINEER FOR CAREFUL REVIEW BEFORE PROCEEDING WITH CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL PLAN AND ELEVATION DIMENSIONS OF THE VARIOUS WORK ITEMS ON THIS PROJECT.
7. ALL WORK PERFORMED AND ALL MATERIAL FURNISHED SHALL CONFORM TO THE LINES, GRADES, CROSS SECTIONS, DIMENSIONS, AND MATERIAL REQUIREMENTS SHOWN ON THE CONSTRUCTION DRAWINGS. THE CONSTRUCTION DRAWINGS SHOW THE CONSTRUCTION LINES, GRADES, DEPTHS AND DIMENSIONS ON WHICH ESTIMATED QUANTITIES ARE BASED. THE CONSTRUCTION LINES, GRADES, DEPTHS AND DIMENSIONS ARE SUBJECT TO VARIATION NECESSARY TO OBTAIN SUBGRADE AND/OR FINAL GRADE SATISFACTORY TO THE ENGINEER. CERTAIN INCIDENTAL ITEMS TO COMPLETE THE SCOPE OF WORK MAY NOT BE SHOWN.
8. THE CONTRACTOR SHALL HAVE ON THE SITE AT ALL TIMES A COMPETENT SUPERINTENDENT CAPABLE OF READING AND UNDERSTANDING THE CONSTRUCTION DOCUMENTS AND THOROUGHLY EXPERIENCED IN THE TYPE OF WORK BEING PERFORMED, AND SHALL BE ABLE TO COORDINATE WITH THE ENGINEER.
9. ALL BROKEN CONCRETE, ASPHALT, TRASH, RUBBISH, ORGANICS, AND OTHER UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY AND ALL NECESSARY PERMITS FOR OFF SITE DISPOSAL/ WASTE AREAS.
10. THE OWNER RESERVES THE RIGHT TO CONTRACT TO AND PERFORM OTHER OR ADDITIONAL WORK ADJACENT TO AND WITHIN THE WORK AREA COVERED BY THIS CONTRACT. WHEN SEPARATE CONTRACTS ARE LET WITHIN THE LIMITS OF ANY ONE PROJECT, EACH CONTRACTOR SHALL CONDUCT HIS WORK SO AS NOT TO INTERFERE WITH OR HINDER THE PROGRESS OR THE COMPLETION OF THE WORK BEING COMPLETED BY OTHER CONTRACTORS. THE CONTRACTORS WORKING ON THE SAME PROJECT SHALL COOPERATE WITH EACH OTHER AS ORDERED BY THE OWNER AND/OR ENGINEER.
11. CLEARING SHALL BE COMPLETED IN ACCORDANCE WITH WVDOH SPECIFICATIONS. CLEARING IS DEFINED AS THE REMOVAL OF TREES, BRUSH, DOWN TIMBER, ROTTEN WOOD, RUBBISH, AND OTHER VEGETATION, AND OBJECTIONABLE MATERIALS AT OR ABOVE ORIGINAL GROUND ELEVATION NOT DESIGNATED TO BE RETAINED. CLEARING ALSO INCLUDES REMOVAL OF FENCES, POSTS, SIGNS, AND DEMOLITION OR REMOVAL OF OTHER OBSTRUCTIONS INTERFERING WITH THE PROPOSED WORK.
12. GRUBBING SHALL BE COMPLETED IN ACCORDANCE WITH WVDOH SPECIFICATIONS. REMOVE ALL STUMPS AND ROOTS WITHIN THE CLEARED AREA UNLESS OTHERWISE APPROVED BY THE ENGINEER. GRUBBING IS DEFINED AS THE REMOVAL FROM BELOW THE ORIGINAL GROUND ELEVATION OF STUMPS, ROOTS, STUBS, BRUSH, ORGANIC MATERIALS AND DEBRIS AS WELL AS CONCRETE, ASPHALT, BRICK, AND OTHER OBSTRUCTIONS INTERFERING WITH THE PROPOSED WORK.
13. DO NOT DEPOSIT OR BURY ON THE SITE DEBRIS RESULTING FROM THE CLEARING AND GRUBBING. TREES, LOGS, BRANCHES, STUMPS, AND OTHER DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS SHALL NOT BE USED IN STRUCTURAL FILL AND IS TO BECOME THE PROPERTY OF THE CONTRACTOR.
14. SUBSEQUENT TO THE REMOVAL OF THE TOPSOIL, AND PRIOR TO PLACEMENT OF FILL, THE EXPOSED SURFACE SHALL BE COMPACTED AND/OR PROOF ROLLED UNTIL A RELATIVELY UNYIELDING SURFACE IS ACHIEVED.
15. SUITABLE SOIL MATERIALS ARE AS THOSE COMPLYING WITH WVDOH STANDARD SPECIFICATIONS.
16. FILL SHALL BE PLACED IN LIFTS OF MAXIMUM LOOSE DEPTH OF 8 INCHES. THE MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY (98% WITHIN 10 FT OF BUILDING PAD AND UNDER ROADWAYS) AT MOISTURE CONTENT WITHIN PLUS OR MINUS THREE PERCENT (±3%) OF THE OPTIMUM AS DETERMINED BY ASTM D698. IF FILL FAILS COMPACTION TESTING, THE CONTRACTOR SHALL REWORK (RE-COMPACT, WATER AND RE-COMPACT, EXCAVATE AND DRY, ETC.) THE MATERIAL TO ACHIEVE THE SPECIFIED COMPACTION. THE CONTRACTOR MAY BE REQUIRED BY THE ENGINEER TO EXCAVATE FILL AND REPLACE WITH MATERIALS CAPABLE OF MEETING THE COMPACTION SPECIFICATIONS. COMPACTION TESTING TO BE DONE IN ACCORDANCE WITH WV DIVISION OF HIGHWAYS SPECIFICATIONS. COPIES OF THE TESTS TO BE FORWARDED TO THE CITY OF BRIDGEPORT UPON THE COMPLETION OF THE ROADWAY AND PRIOR TO PAVING.
17. WHERE THE SUBGRADE OR LAYER OF SOIL MATERIAL MUST BE MOISTURE CONDITIONED BEFORE COMPACTION, UNIFORMLY APPLY WATER TO THE SURFACE OF THE SUBGRADE OR LAYER OF SOIL MATERIAL TO PREVENT FREE WATER APPEARING ON THE SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.
18. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, SOIL MATERIAL THAT IS TOO WET TO PERMIT COMPACTION TO SPECIFIED DENSITY. SOIL MATERIAL THAT HAS BEEN REMOVED BECAUSE IT IS TOO WET TO PERMIT COMPACTION MAY BE STOCKPILED OR SPREAD AND ALLOWED TO DRY. ASSIST DRYING BY DISKING, HARROWING OR PULVERIZING, UNTIL THE MOISTURE CONTENT IS REDUCED TO A SATISFACTORY VALUE, AS DETERMINED BY MOISTURE-DENSITY RELATION TESTS.
19. COMPACTOR FOR MASS EARTHWORK SHALL BE MINIMUM FIVE TON STATIC DRUM WEIGHT VIBRATORY ROLLER OR FIVE TON WEIGHT SHEEPSFOOT COMPACTOR AS APPROPRIATE FOR THE TYPE OF SOIL MATERIAL AT THE SITE OR OTHER COMPACTOR APPROVED BY THE ENGINEER.
20. IN AREAS TO RECEIVE FILL AND AT THE FINAL CUT SUBGRADE, PROOF ROLL AND COMPACT THE EXPOSED GROUND SURFACE FOLLOWING CLEARING AND GRUBBING AND ANY REQUIRED EXCAVATION WITH A MINIMUM OF FOUR PASSES OF AN APPROVED COMPACTOR. PROOF ROLLING SHALL BE UNDER THE OBSERVATION OF THE ENGINEER AS DESCRIBED HEREIN. IMMEDIATELY FOLLOWING THE COMPLETION OF EXCAVATION TO PROPOSED SUBGRADES IN CUT AREAS, PROOF ROLLING SHALL BE PERFORMED AS SPECIFIED. ANY AREAS WHICH DEFLECT, RUT, OR PUMP UNDER THE LOADED DUMP TRUCK SHALL BE UNDERCUT AND REPLACED WITH COMPACTED FILL MATERIAL OR STONE BASE COURSE AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
21. PROOF ROLLING SHALL BE DONE WITH ONE PASS OF A FULLY LOADED TANDEM DUMP TRUCK EQUAL TO OR EXCEEDING 50,000-LB OR OTHER CONSTRUCTION EQUIPMENT IF APPROVED BY THE ENGINEER. PROOF ROLLING METHODS SHALL BE AS FOLLOWS:
- A. AFTER THE SUBGRADE HAS BEEN COMPLETED THE SUBGRADE SHALL THEN BE PROOF ROLLED. THE COVERAGE AREAS AND METHODS SHALL BE IDENTIFIED BY THE ENGINEER.
- B. THE EQUIPMENT SHALL BE OPERATED AT A SPEED THAT THE ENGINEER CAN COMFORTABLY AND SLOWLY WALK ALONG SIDE THE EQUIPMENT.
- C. IF IT BECOMES NECESSARY TO TAKE CORRECTIVE ACTION, SUCH AS BUT NOT LIMITED TO UNDERDRAIN INSTALLATION, UNDERCUT AND BACKFILL OF AN UNSUITABLE MATERIAL, AND AERATION OF EXCESSIVELY WET MATERIAL IN AREAS THAT HAVE BEEN PROOF ROLLED. THESE AREAS SHALL BE PROOF ROLLED AGAIN FOLLOWING THE COMPLETION OF THE NECESSARY CORRECTIONS. IF THE CORRECTIONS ARE NECESSARY DUE TO THE NEGLIGENCE OF THE CONTRACTOR, THE CORRECTIVE WORK AND ADDITIONAL PROOF ROLLING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE OWNER.
22. THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND OTHER ACTIONS AS REQUIRED BY LOCAL AND STATE REGULATIONS OR REQUESTED BY ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING OR MODIFYING SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ORDER TO PREVENT EROSION.
23. EROSION AND SEDIMENT CONTROL DETAILS NOT SHOWN IN THE PLANS SHALL BE IN ACCORDANCE WITH THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT CONTROL MANUAL, LATEST EDITION. [HTTP://WWW.DEP.WV.GOV/WVE/PROGRAMS/STORMWATER/CSW/PAGES/ESC\\_BMP.ASPX](http://www.dep.wv.gov/wve/programs/stormwater/csw/pages/esc_bmp.asp)
24. ALL QUALITY CONTROL TESTING AND INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY AND WILL BE PAID FOR BY THE OWNER. TESTING SHALL BE PERFORMED FOR SOILS, SUBGRADE, AGGREGATE BASE COURSE, CONCRETE, AND ASPHALT.
25. BASE MAPPING WITH (2FT CONTOUR INTERVALS) WAS OBTAINED FROM BLUE MOUNTAIN ENGINEERING. THE TOPOGRAPHIC FEATURES WERE DERIVED FROM AERIAL PHOTOGRAPHY.
26. IF SUBSURFACE DRAINAGE/SPRINGS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN ORDER TO PROVIDE AN ADEQUATE CONNECTION TO THE EXISTING OR PROPOSED DRAINAGE CONVEYANCE SYSTEM.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REMOVAL AND DISPOSAL OF ALL EXCESS WASTE MATERIALS FROM THE PROJECT SITE.
28. SHALL CONTRACTOR MAKE USE OF A PORTABLE ROCK CRUSHER ON SITE, ROCK CRUSHER MUST HAVE A RATED CAPACITY OF 150 TONS/HOUR OR LESS.

CONTACT INFORMATION

OWNER

ROXUL USA INC.  
4594 CAYCE ROAD  
BYHALIA, MS 38611

CONTACT: JANUSZ TCHÓRZEWSKI

ENGINEER

THE THRASHER GROUP  
600 WHITE OAKS BOULEVARD  
P.O. BOX 940  
BRIDGEPORT, WV 26330  
ATTN: ROBERT MILNE, P.E.

MISS UTILITY

1-800-245-4848  
<http://www.muwv.org>

WATER

JEFFERSON UTILITIES  
270 INDUSTRIAL BLVD.  
KEARNEYSVILLE, WV 25430  
304-725-9140

SEWER

CITY OF RANSON  
312 SOUTH MILFRED STREET  
RANSON, WV 25438  
304-725-1010

GAS

MOUNTAINEER GAS COMPANY  
P.O. BOX 6232  
19TH & WOOD STREETS  
WHEELING, WV 26003  
888-420-4427

ELECTRIC

POTOMAC EDISON  
801 WILSON STREET  
MARTINSBURG, WV 25401

COMMUNICATIONS

FRONTIER COMMUNICATIONS  
1108 N. MILFRED STREET  
RANSON, WV 25438

EROSION & SEDIMENT CONTROL NOTES

SEEDING AND MULCHING

1. **TEMPORARY STABILIZATION**  
DATES: MARCH 1 THROUGH JUNE 15  
SEED: OATS @ 168 LB/AC  
DATES: AUGUST 15 THROUGH NOVEMBER 1  
SEED: RYE @ 120 LB/AC  
FERTILIZER: 10-10-10 @ 400 LB/AC
- FOR STABILIZATION OUTSIDE SEEDING DATES, USE HAY OR STRAW MULCH AT 3 TONS/AC OR AT 2 TONS/AC IF ASPHALT EMULSION IS APPLIED AT 100 GAL/AC.
2. **PERMANENT STABILIZATION**  
DATES: MARCH, APRIL, AUGUST, & SEPTEMBER  
SEED: NO-MOW COVER MIX - PDOT-L @ 116 LB/AC  
FERTILIZER: 10-20-10 @ 1000 LB/AC  
LIME: 3 TONS/AC OR PER SOIL TEST RESULTS  
MULCH: HAY OR STRAW @ 2 TONS/AC OR @ 1.5 TONS/AC WITH ASPHALT EMULSION @ 125 GAL/AC
3. SEEDBED PREPARATION: AREAS TO BE SEEDED SHALL BE FREE OF ROCKS AND STONES, DISKED TO A DEPTH OF 4-IN TO 6-IN, AND SMOOTHLY GRADED.
4. SEEDING METHOD: SEED MAY BE BROADCAST BY HYDROSEEDER OR MANUALLY AS FOLLOWS: BY HAND WITH A CYCLONE SEEDER, OR FERTILIZER SPREADER. IF A MANUAL METHOD IS USED, DIVIDE THE SEED INTO TWO LOTS AND BROADCAST THE SECOND PERPENDICULAR TO THE FIRST.
5. TOPSOIL SHALL BE REDISTRIBUTED ON ALL DISTURBED AREAS TO BE STABILIZED PRIOR TO SEEDING.
6. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.
7. WHERE THE INITIATION OF STABILIZATION MEASURES WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.
8. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED (e.g., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14 DAYS), THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.
9. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.

MAINTENANCE AND INSPECTION NOTES

1. CONTRACTOR SHALL CLEAN OUT SEDIMENT BEHIND THE SILT FENCE AND/OR COMPOST FILTER SOCKS ONCE IT IS ONE HALF OF THE HEIGHT OF THE FENCE AND/OR SOCK. THE SEDIMENT SHALL BE INCORPORATED INTO THE FILL WITHIN THE DISTURBED AREA.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, AT MINIMUM, ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER ANY STORM GREATER THAN 0.5-INCHES PER 24-HOUR PERIOD. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.

CONSTRUCTION SEQUENCE

1. LOCATE ALL EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY MISS UTILITY OF WEST VIRGINIA AT 1-800-245-4848 A MINIMUM OF (2) DAYS PRIOR TO ANY EXCAVATION OR CONSTRUCTION.
2. INSTALL ALL PERIMETER AND EROSION AND SEDIMENT CONTROLS. (SILT FENCE, SUPER SILT FENCE, DIVERSIONS, BASINS, TRAPS, INLET PROTECTION, STABILIZED CONSTRUCTION ENTRANCE, ETC.)
3. REMOVE AND DISPOSE OF ALL MATERIAL NOT SUITABLE FOR FILL: BRUSH, LOGS, DEBRIS, ETC.
4. STRIP AND STOCK TOPSOIL FOR REUSE IN FINISH GRADING.
5. EXCAVATE AND ROUGH GRADE ROADS AND PAD.
6. INSTALL STORM DRAINS AND ROCK OUTLET PROTECTION.
7. COMPLETE FINE GRADING. ALL DISTURBED AREAS SHALL BE DRESSED TO A NEAT AND FINISHED APPEARANCE AND STABILIZED WITH SEED AND MULCH OR STONE.
8. AFTER COMPLETE STABILIZATION OF THE DRAINAGE AREA, REMOVE EROSION AND SEDIMENT CONTROL FACILITIES AND DRESS AND STABILIZE AS REQUIRED.
9. CONVERT DETENTION BASIN TO PERMANENT STORM WATER BASIN.
10. FINAL PROJECT CLEAN UP AND DEMOBILIZATION.

LAYOUT TAB: GENERAL NOTES

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600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
PHONE (304) 624-4108 • FAX (304) 624-7831

PHASE No.
CONTRACT No.
PROJECT No.
101-030-3203

ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
EXISTING CONDITIONS

SHEET No.
2



LAYOUT TAB: QUANTITIES  
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Structure Table	
Structure Name	Structure Details
28	RIM = 580.58' 48" INV IN = 569.38' 48" INV OUT = 569.38'
25	RIM = 580.38' 30" INV IN = 571.95' 30" INV OUT = 571.95'
24	RIM = 580.34' 24" INV IN = 573.80' 30" INV OUT = 573.80'
35	RIM = 580.23' 12" INV OUT = 578.20'
36	RIM = 580.00' 12" INV OUT = 578.00'
41	RIM = 579.87' 24" INV IN = 571.20' 24" INV OUT = 571.20'
26	RIM = 579.38' 30" INV IN = 570.95' 36" INV OUT = 570.95'
23	RIM = 579.32' 18" INV IN = 574.80' 24" INV OUT = 574.80'
27	RIM = 578.61' 36" INV IN = 570.14' 36" INV IN = 570.52' 48" INV OUT = 570.14'
37	RIM = 578.44' 48" INV IN = 563.38' 48" INV IN = 565.21' 12" INV IN = 574.91' 48" INV OUT = 564.50'
22	RIM = 578.29' 18" INV OUT = 575.80'

Structure Table	
Structure Name	Structure Details
7	RIM = 580.61' 48" INV IN = 566.91' 48" INV OUT = 566.91'
5	RIM = 580.25' 12" INV IN = 570.48' 36" INV IN = 569.25' 24" INV IN = 569.88' 48" INV OUT = 569.25'
6	RIM = 580.16' 48" INV IN = 567.64' 18" INV IN = 571.79' 48" INV OUT = 567.64'
11	RIM = 578.72' 48" INV IN = 563.52' 24" INV IN = 566.20' 24" INV IN = 566.12' 54" INV OUT = 563.52'
17	RIM = 578.12' 18" INV OUT = 575.60'
8	RIM = 577.75' 48" INV IN = 565.60' 48" INV OUT = 565.60'
13	RIM = 576.93' 18" INV OUT = 573.90'
20	RIM = 576.89' 24" INV IN = 568.60' 24" INV OUT = 568.60'
9	RIM = 576.52' 48" INV IN = 564.85' 48" INV OUT = 564.85'
21	RIM = 576.46' 18" INV IN = 568.62' 24" INV IN = 568.12' 24" INV OUT = 568.12'

Structure Table	
Structure Name	Structure Details
38	RIM = 577.47' 48" INV IN = 568.53' 48" INV OUT = 568.53'
33	RIM = 577.44' 24" INV IN = 570.05' 12" INV IN = 574.22' 30" INV OUT = 570.05'
30	RIM = 576.47' 48" INV IN = 565.94' 48" INV OUT = 565.94'
32	RIM = 576.28' 18" INV IN = 571.91' 24" INV OUT = 571.91'
39	RIM = 576.18' 12" INV OUT = 574.00'
31	RIM = 575.84' 18" INV OUT = 573.30'
40	RIM = 574.33' 12" INV IN = 570.35' 18" INV OUT = 570.35'
NULL 1	RIM = 574.16' 36" INV OUT = 570.93'
29	RIM = 572.81' 48" INV IN = 566.80' 48" INV OUT = 566.80'
34	RIM = 572.60' 38" INV IN = 566.60' 18" INV IN = 567.17' 48" INV OUT = 566.60'

Structure Table	
Structure Name	Structure Details
12	RIM = 576.43' 54" INV IN = 562.27' 54" INV OUT = 562.27'
4	RIM = 576.23' 12" INV OUT = 574.20'
10	RIM = 575.46' 48" INV IN = 564.28' 48" INV OUT = 564.28'
14	RIM = 575.43' 18" INV IN = 571.40' 24" INV OUT = 571.40'
16	RIM = 574.38' 24" INV OUT = 571.40'
15	RIM = 574.30' 24" INV IN = 569.89' 36" INV OUT = 569.89'
19	RIM = 573.14' 24" INV OUT = 569.60'
18	RIM = 572.78' 18" INV OUT = 570.30'
NULL 2	RIM = 569.73' 24" INV OUT = 567.55'

Structure Table	
Structure Name	Structure Details
42	RIM = 562.34' 36" INV IN = 556.10' 36" INV OUT = 556.41'

Pipe Table					
DIAMETER	LENGTH	SLOPE	INLET STRUCTURE	OUTLET STRUCTURE	MATERIAL
12"	272'	1.4%	4	5	HDPE
48"	322'	0.5%	5	6	HDPE
48"	146'	0.5%	6	7	HDPE
48"	262'	0.5%	7	8	HDPE
48"	150'	0.5%	8	9	HDPE
48"	115'	0.5%	9	10	HDPE
48"	151'	0.5%	10	11	HDPE
54"	251'	0.5%	11	12	HDPE
54"	141'	0.9%	12		HDPE
18"	200'	1.3%	13	14	HDPE
24"	151'	1.0%	14	15	HDPE
36"	128'	0.5%	15	5	HDPE
24"	304'	0.5%	16	5	HDPE
18"	381'	1.0%	17	6	HDPE
18"	223'	0.8%	18	21	HDPE
24"	192'	1.0%	21	11	HDPE
24"	200'	0.5%	19	20	HDPE
24"	95'	0.5%	20	21	HDPE
24"	154'	0.9%	NULL 2	11	HDPE

Pipe Table					
DIAMETER	LENGTH	SLOPE	INLET STRUCTURE	OUTLET STRUCTURE	MATERIAL
18"	200'	0.5%	22	23	HDPE
24"	199'	0.5%	23	24	HDPE
30"	370'	0.5%	24	25	HDPE
30"	200'	0.5%	25	26	HDPE
36"	162'	0.5%	26	27	HDPE
48"	148'	0.5%	27	28	HDPE
48"	171'	0.5%	29	30	HDPE
18"	157'	0.9%	31	32	HDPE
30"	230'	1.5%	33	34	HDPE
12"	199'	2.0%	35	33	HDPE
48"	92'	0.8%	30	37	HDPE
12"	152'	2.0%	36	37	HDPE
48"	92'	2.7%	37		HDPE
36"	52'	0.8%	NULL 1	27	HDPE
48"	170'	0.5%	28	38	HDPE
48"	147'	1.2%	38	29	HDPE
12"	183'	2.0%	39	40	HDPE
18"	166'	1.9%	40	34	HDPE
24"	141'	0.5%	32	41	HDPE
24"	229'	0.5%	41	33	HDPE

SITE QUANTITY SUMMARY			
WV ITEM #	DESCRIPTION	UNIT	QUANTITY
201001-000	CLEARING AND GRUBBING (98.8 Acres)	LS	1
	DEMOLITION	LS	1
204001-000	MOBILIZATION/DEMOBILIZATION	LS	1
207001-001	UNCLASSIFIED EXCAVATION	CY	217,011
	TOPSOIL	CY	69,269
	ROCK EXCAVATION	CY	
642004-003	PERMANENT SEEDING AND MULCHING	AC	52
	TEMPORARY SEEDING AND MULCHING	AC	52
606022-001	STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK	EA	1
642031-001	CHECK DAM	EA	9
	GRASS LINED CHANNEL	LF	4,321
	ROCK LINED CHANNEL	LF	0
642012-001	SILT FENCE	LF	1,402
642040-001	INLET PROTECTION	EA	30
218001-000	RIPRAP (STONE OUTLET PROTECTION)	EA	2
	STORMWATER POND LINER, 60 MIL HDPE	SY	9,725
	SETTLING POND LINER, CONCRETE	CY	912
	REUSE POND LINER, 60 MIL HDPE	SY	7,989
207034-000	FABRIC FOR SEPARATION	SY	94,787
307001-001	WVDOH CLASS I AGGREGATE BASE COURSE	CY	20,638
402001-040	HOT-MIX ASPHALT TYPE I WEARING COURSE	TN	5,359
401001-040	HOT-MIX ASPHALT HMA BASE COURSE, TYPE 2	TN	7,146
401001-050	HOT-MIX ASPHALT HMA BASE COURSE, TYPE 1	TN	12,571
610003-001	PLAIN CONCRETE CURB TYPE 1	LF	9,518
	CONCRETE PAVEMENT	CY	8,879
609005-001	CURB RAMPS (SIDEWALK)	EA	1
605009-001	TYPE G INLET	EA	30
	MANHOLES	EA	9
	12" HDPE	LF	806
	18" HDPE	LF	1,327
	24" HDPE	LF	1,955
	30" HDPE	LF	800
	36" HDPE	LF	682
	48" HDPE	LF	1,966
	54" HDPE	LF	392
	ROOF DRAIN COLLECTION PIPE, 8" SCHEDULE 40	LF	1,815
	36" GATE VALVE	EA	1
	TROUGH VALVE	EA	2
	2" PVC SLEEVES	LF	300
	OIL/WATER SEPARATORS	EA	4
	6' CHAIN LINK FENCE	LF	3,624
	8' CHAIN LINK FENCE	LF	7,491
	CHAIN LINK FENCE 3' MAN GATES	EA	5
	CHAIN LINK FENCE DOUBLE VEHICULAR GATES	EA	5
	CONSTRUCTION LAYOUT	LS	1
	BIORETENTION AREA 1	LS	1
	BIORETENTION AREA 2	LS	1
663001-*	PAVEMENT MARKINGS	LS	1
	PERMANENT TRAFFIC SIGNS	LS	1

## DITCH SCHEDULE

CHANNEL SCHEDULE									
CHANNEL	EROSION CONTROL MATTING LENGTH	MAX SLOPE	VELOCITY (FT/S)	ROCK LENGTH	ROCK SIZE D <sub>50</sub> (IN)	DEPTH	BOTTOM WIDTH	FORESLOPE	BACKSLOPE
DITCH D-1	342 ft	1.3%	2.92	-	-	1.0 ft	2 ft	2:1	2:1
DITCH D-2	936 ft	1.1%	4.73	-	-	2.0 ft	2 ft	2:1	2:1
DITCH D-3	585 ft	1.9%	7.75	-	-	2.5 ft	4 ft	2:1	2:1
DITCH D-4	475 ft	2.7%	8.85	-	-	2.5 ft	4 ft	2:1	2:1
SWALE #1	735 ft	2.4%	4.27	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #2	165 ft	3.7%	3.58	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #3	234 ft	1.0%	2.38	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #4	264 ft	1.5%	2.43	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #5	217 ft	1.4%	3.09	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #6	120 ft	2.5%	1.81	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #7	213 ft	1.4%	2.30	-	-	1.5 ft	5 ft	3:1	3:1
SWALE #8	35 ft	1.0%	1.24	-	-	1.5 ft	5 ft	3:1	3:1

## QUANTITY SUMMARY

UTILITY QUANTITY SUMMARY		
ITEM #	DESCRIPTION	TOTAL
1	10" HDPE IPS DR-9 (PE 4710) PIPE	5950
2	8" HDPE IPS DR-9 (PE4710) PIPE	600
3	8" DUCTILE IRON CL-50 P.J.T. PIPE	2250
4	8" SCH. 40 STEEL PIPE	900
5	8" PVC SCH. 80 CONDUIT	1560
6	6" PVC SCH. 80 CONDUIT	15820
7	6" RIGID GALVANIZED CONDUIT	2300
8	6" SCH. 80 SEAMLESS BLACK PIPE	400
9	4" HDPE IPS DR-9 (PE 4710) PIPE	2750
10	4" PVC SCH. 80 CONDUIT	12600
11	4" RIGID GALVANIZED CONDUIT	1150
12	4" SCH. 80 SEAMLESS BLACK PIPE	500
13	3" HDPE IPS DR-9 (PE 4710) PIPE	14500
14	3" SCH. 80 STEEL PIPE (INSULATED)	2000
15	3" PVC SCH. 80 CONDUIT	380
16	2 1/2" SCH. 80 STEEL PIPE (INSULTAED)	100
17	2" HDPE IPS DR-9 (PE 4710) PIPE	250
18	2" SCH. 80 SEAMLESS BLACK PIPE	450
19	2" HDPE IPS DR-9 (PE 4710) PIPE (COATED & INSULATED TO MAINTAIN 60 DEG CEL (140 DEF FAIR)	370
20	10" M.J.T. GATE VALVE, COMPLETE W/ BOX, LID, POST INDICATOR STEMS, & M.J.T. HDPE ADAPTERS)	10
21	8" M.J.T. GATE VALVE, COMPLETE W/ BOX, LID & M.J.T. HDPE ADAPTERS	1
22	4" M.J.T. GATE VALVE, COMPLETE W/ BOX, LID & M.J.T. HDPE ADAPTERS	7
23	3" M.J.T. GATE VALVE, COMPLETE W/ BOX, LID & M.J.T. HDPE ADAPTERS	8
24	3" THREADED GATE VALVE, COMPLETE W/ BOX & LID	12
25	2" M.J.T. GATE VALVE, COMPLETE W/ BOX, LID & M.J.T. HDPE ADAPTERS	2
26	FIREHYRANT ASSEMBLY, COMPLETE	10
27	MANHOLE BASE, CONETOP & REGULAR CASTING	12
28	48" DIA. CONCRETE MANHOLE RISER PIPE	33
29	DROP MANHOLE CONNECTION (2'-6" DROP)	1
30	8" TERMINAL IN-LINE CLEANOUT	4
31	4" PRESSURE INLINE CLEANOUT	2
32	10" 90 DEGREE HDPE FUSED FITTING	6
33	10" 45 DEGREE HDPE FUSED FITTING	11
34	10" 22 1/2 DEGREE HDPE FUSED FITTING	3
35	10"x10"x3" HPDE FUSED TEE	5
36	8"x8"x4" HDPE FUSED TEE	1
37	8"x8"x2" HDPE FUSED TEE	1
38	8" 90 DEGREE HDPE FUSED FITTING	2
39	8" SCH. 40 90 DEGREE WELDED FITTING	2
40	8" SCH. 40 45 DEGREE WELDED FITTING	2
41	8" MECHANICAL CAP	1
42	4"x4"x3" HDPE FUSED TEE	1
43	4" 90 DEGREE HDPE FUSED FITTING	10
44	4" 45 DEGREE HDPE FUSED FITTING	7
45	4" 22 1/2 DEGREE HDPE FUSED FITTING	1
46	3"x3"x3" HDPE FUSED TEE	1
47	3" 90 DEGREE HDPE FUSED FITTING	6
48	3" 45 DEGREE HDPE FUSED FITTING	4
49	3" THREADED 90 DEGREE INSULATED FITTING	10
50	3" THREADED 45 DEGREE INSULATED FITTING	2
51	2" 90 DEGREE HDPE FUSED FITTING	2
52	2" 90 DEGREE THREADED FITTING	1
53	CONCRETE JUNCTION PULL BOXES	11
54	PUMP STATION #1 (CONCRETE WELL/VAULT AND EXTERIOR PIPING ONLY)	1
55	BOLLARDS	4
56	ELECTRICAL HANHOLES	26



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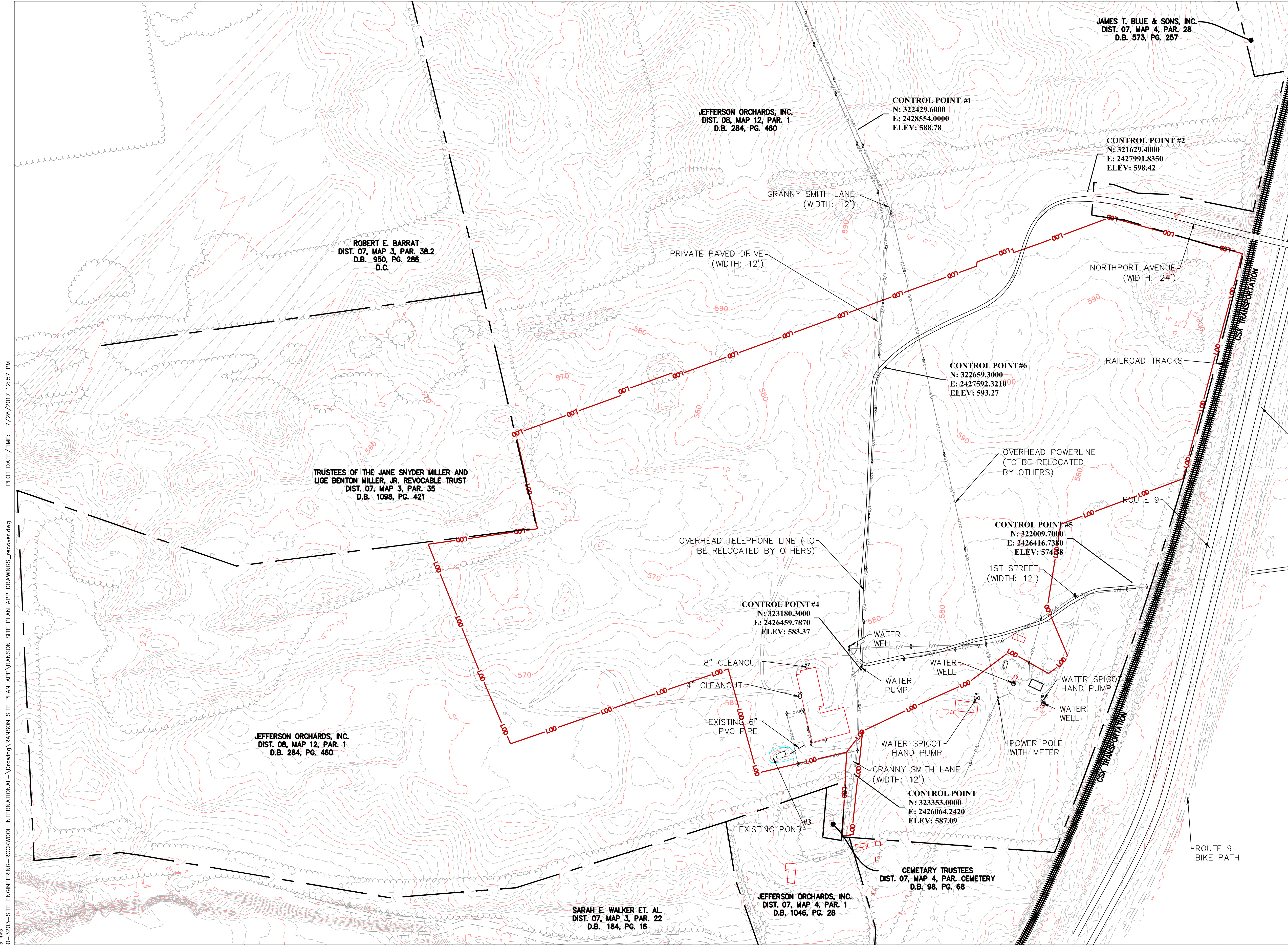
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CONTRACT No.
PROJECT No.
101-030-3203

ROXUL USA INC. EROSION & SEDIMENTATION CONTROL PLANS RAN 5 PROJECT JEFFERSON COUNTY, WEST VIRGINIA QUANTITIES
---

SHEET No.
3

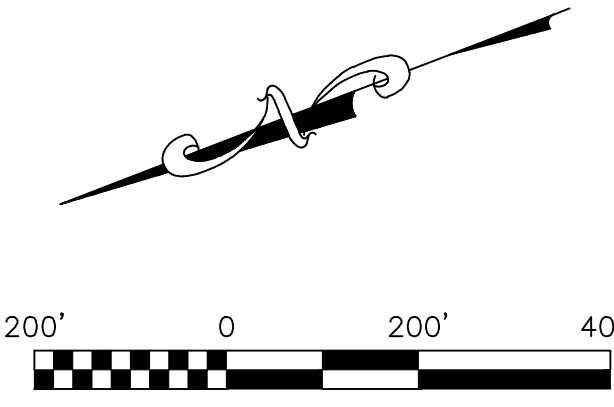


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PLAN LEGEND

- PROPERTY LINE
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED LIMIT OF DISTURBANCE
- PAVED ROAD
- UNPAVED ROAD
- EXISTING OVERHEAD ELECTRIC
- EXISTING POWER POLE
- EXISTING TREELINE



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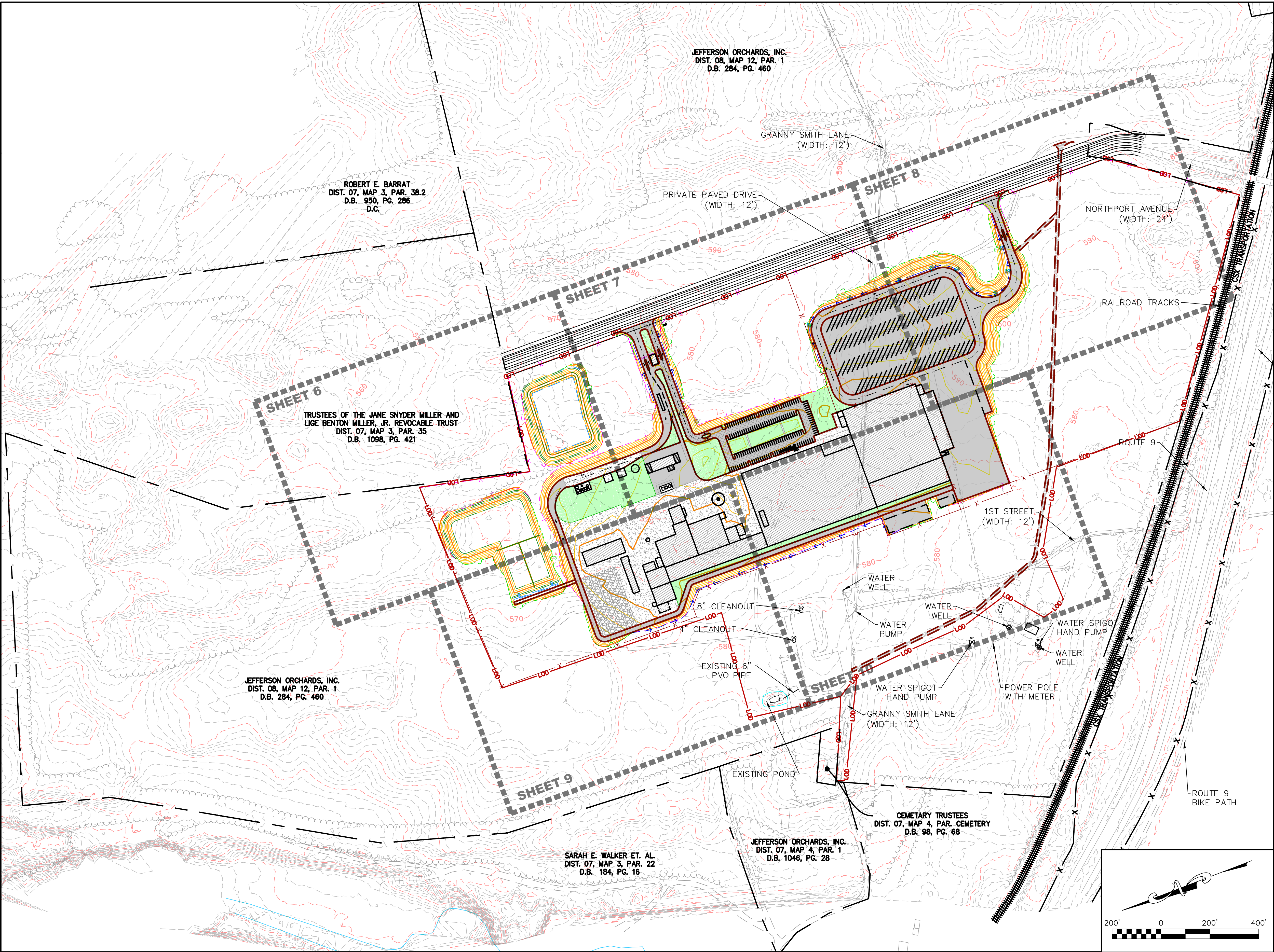
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101-030-3203

ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
EXISTING CONDITIONS

SHEET No.
4



LAYOUT TAB: OVERALL SITE PLAN  
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PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- CONCRETE AREA
- GREEN SPACE
- ASPHALT AREA
- LIGHT DUTY ASPHALT AREA
- BUILDING AREA
- UNPAVED AREA
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED 8' CHAIN LINK FENCE

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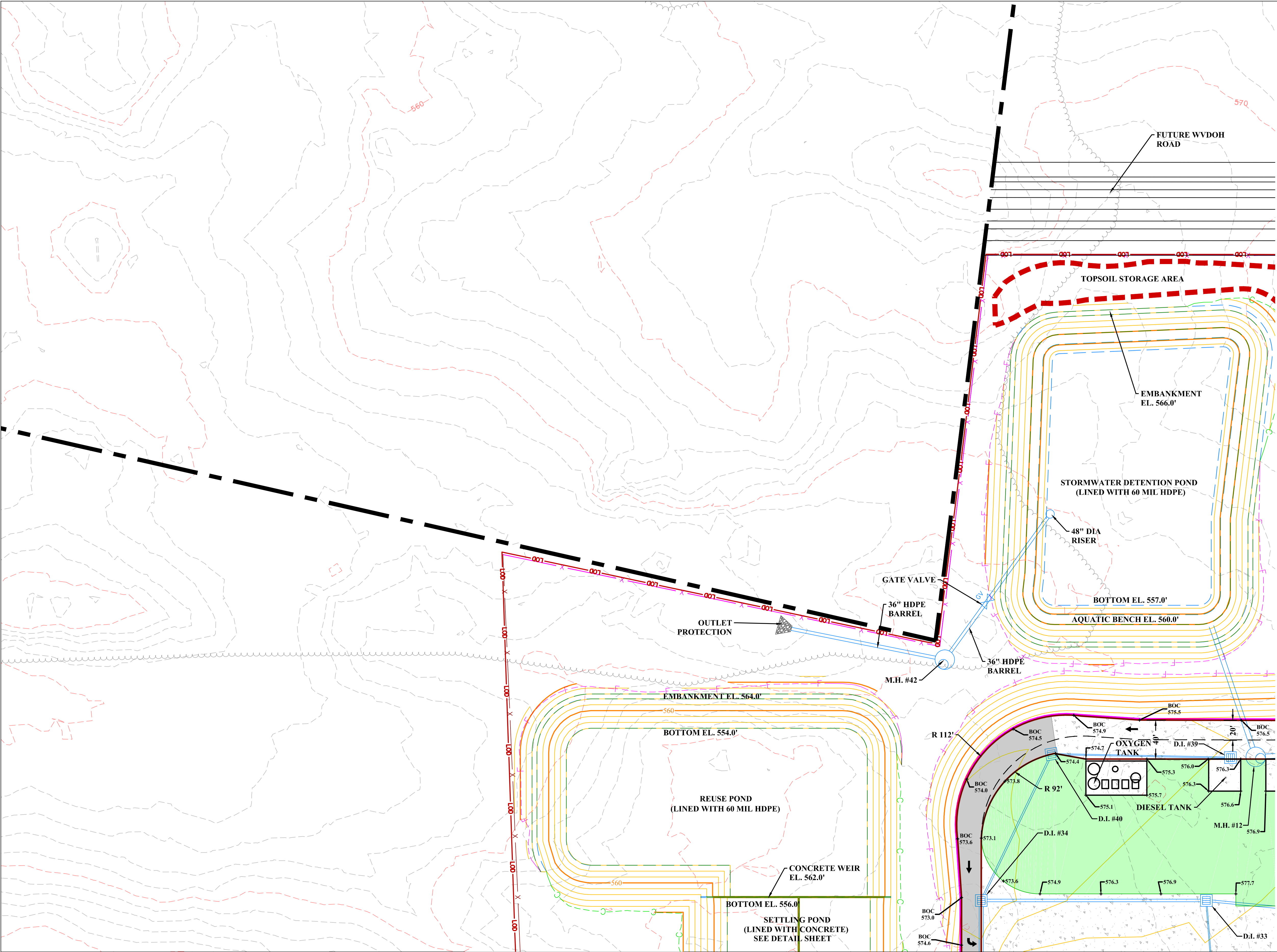
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ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
OVERALL SITE PLAN

SHEET No.
5

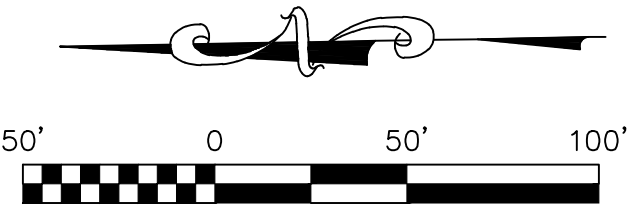


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PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- CONCRETE AREA
- GREEN SPACE
- ASPHALT AREA
- BUILDING AREA
- UNPAVED AREA
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED 8' CHAIN LINK FENCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED CURB AND GUTTER
- PROPOSED TOPSOIL STORAGE AREA
- PROPOSED BOTTOM OF CURB ELEVATION
- ALL CURBS ARE 6"
- PROPOSED SPOT ELEVATION



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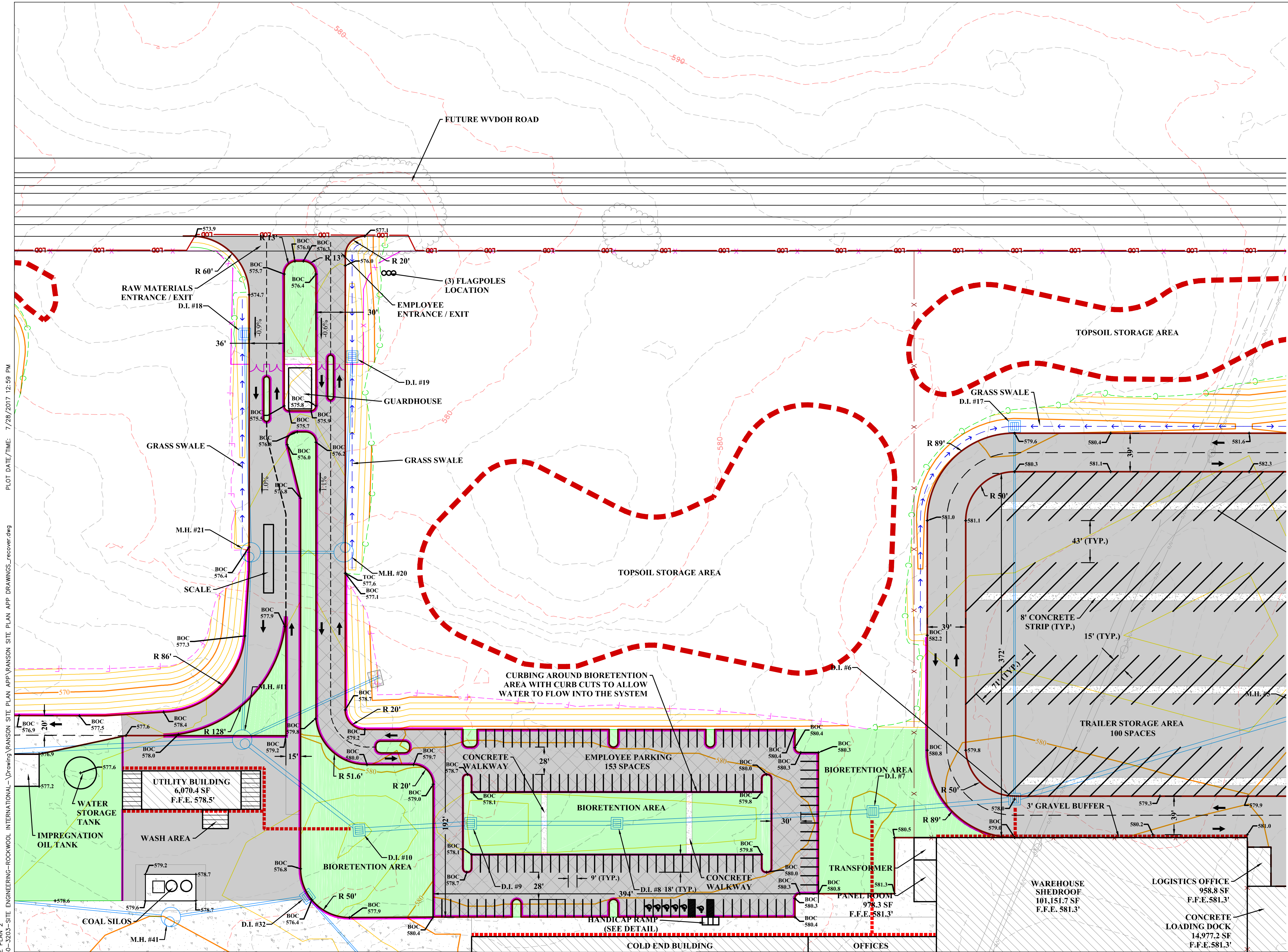
ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
DETAILED SITE PLAN

SHEET No.
6



PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- CONCRETE AREA
- GREEN SPACE
- ASPHALT AREA
- LIGHT DUTY ASPHALT AREA
- BUILDING AREA
- UNPAVED AREA
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED 8' CHAIN LINK FENCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED CURB AND GUTTER
- PROPOSED TOPSOIL STORAGE AREA
- PROPOSED BOTTOM OF CURB ELEVATION
- ALL CURBS ARE 6"
- PROPOSED SPOT ELEVATION



LAYOUT TAB: SITE PLAN 2  
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PHONE (304) 624-4108 • FAX (304) 624-7831

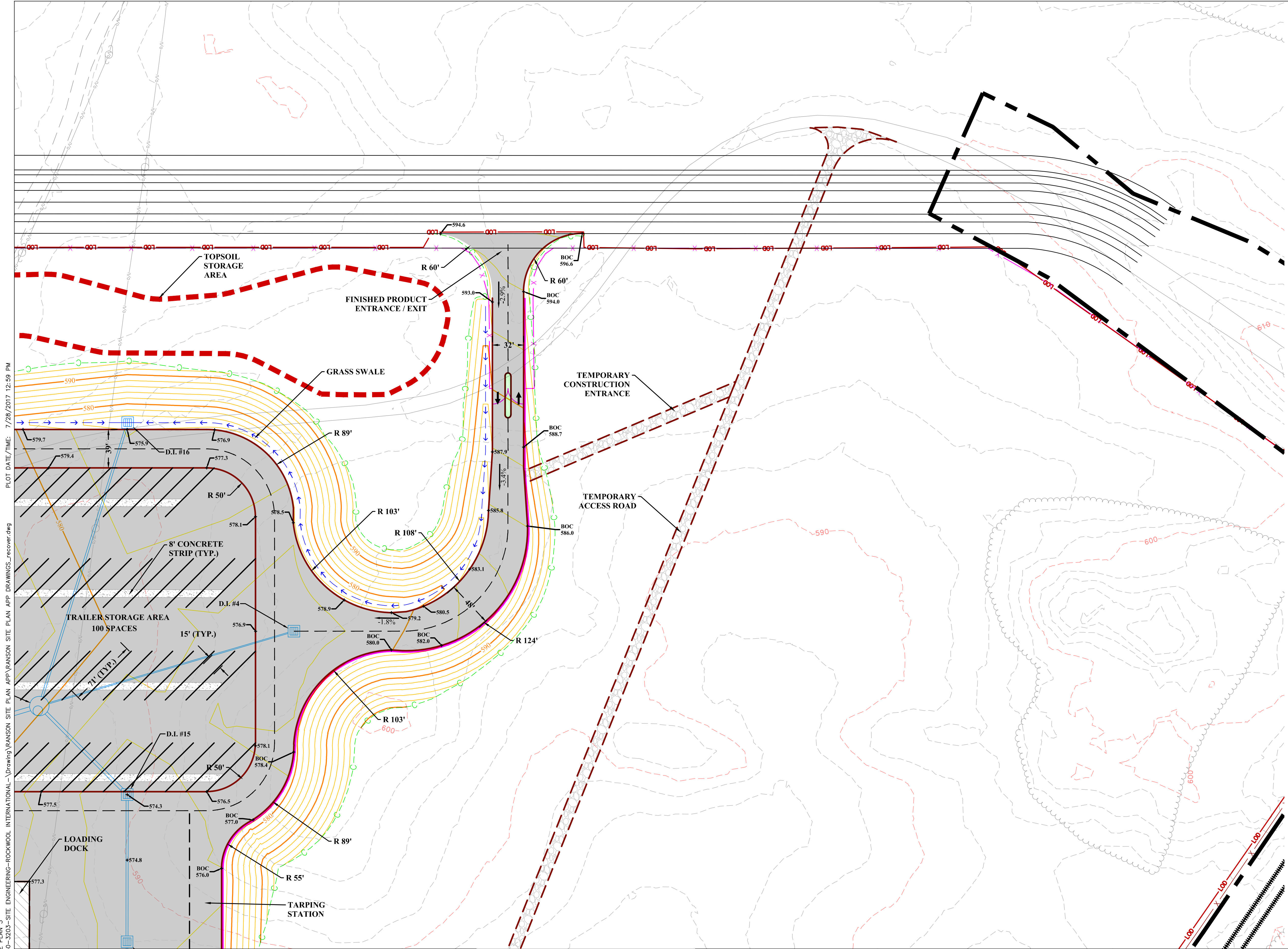
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CONTRACT No.
PROJECT No.
101-030-3203

ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
DETAILED SITE PLAN

SHEET No.
7



LAYOUT TAB: SITE PLAN 3  
CAD FILE: R:\030-3203-SITE ENGINEERING-ROCKWOLD INTERNATIONAL\Drawing\ROXUL\ANSI SITE PLAN APP DRAWINGS\recovered.dwg  
PLOT DATE/TIME: 7/28/2017 12:59 PM



PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- CONCRETE AREA
- GREEN SPACE
- ASPHALT AREA
- BUILDING AREA
- UNPAVED AREA
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED 8' CHAIN LINK FENCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED TOPSOIL STORAGE AREA
- PROPOSED CURB AND GUTTER
- PROPOSED BOTTOM OF CURB ELEVATION
- ALL CURBS ARE 6"
- PROPOSED SPOT ELEVATION

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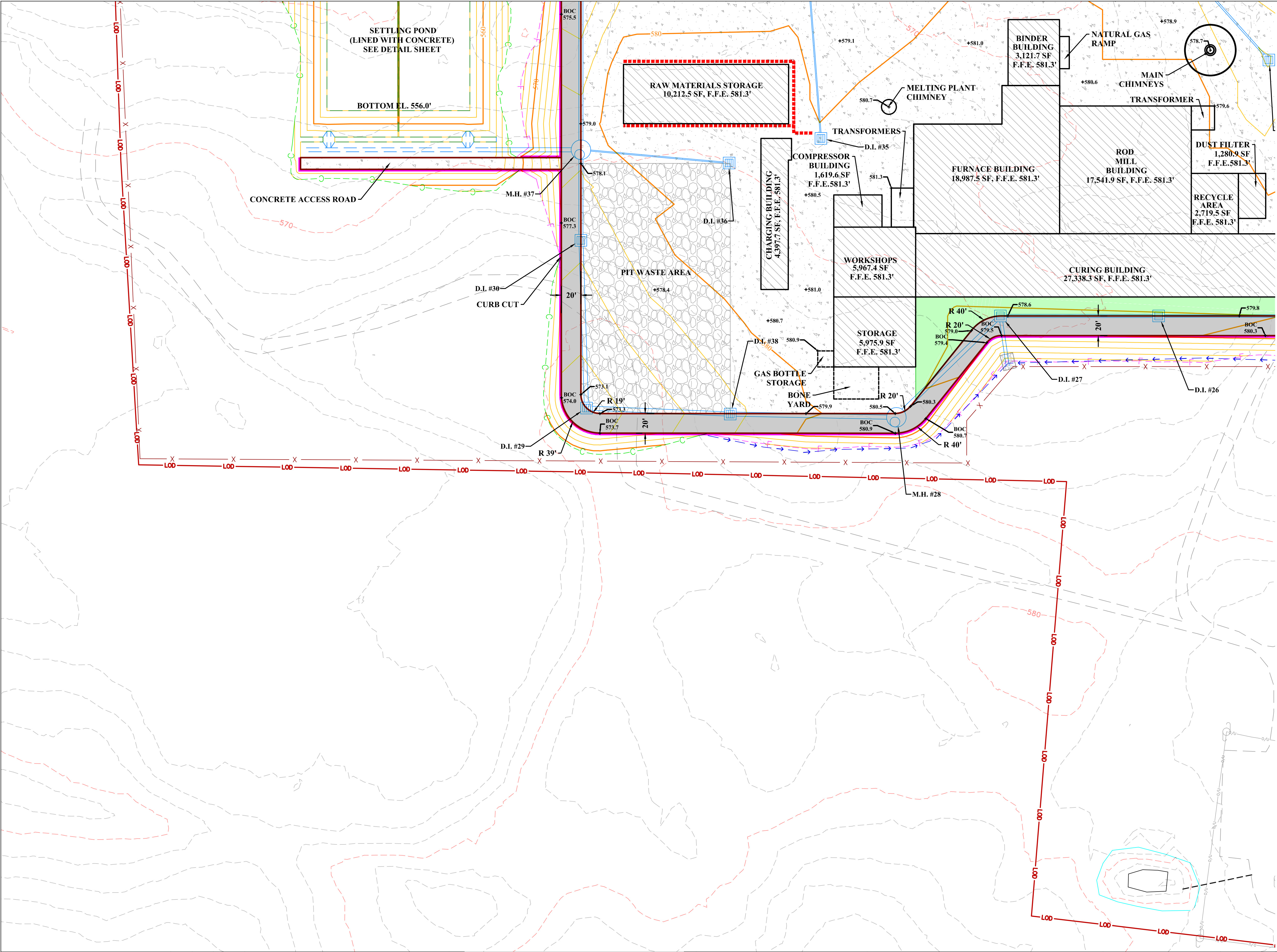
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PROJECT No.
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
DETAILED SITE PLAN

SHEET No.
8

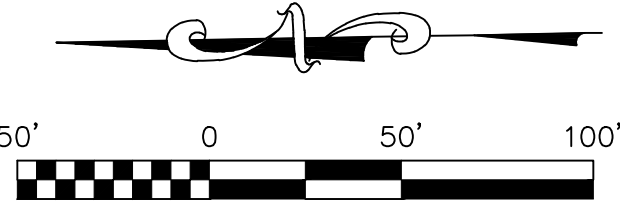


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PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- CONCRETE AREA
- GREEN SPACE
- ASPHALT AREA
- BUILDING AREA
- UNPAVED AREA
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED 8' CHAIN LINK FENCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED CURB AND GUTTER
- PROPOSED BOTTOM OF CURB ELEVATION
- ALL CURBS ARE 6"
- PROPOSED SPOT ELEVATION



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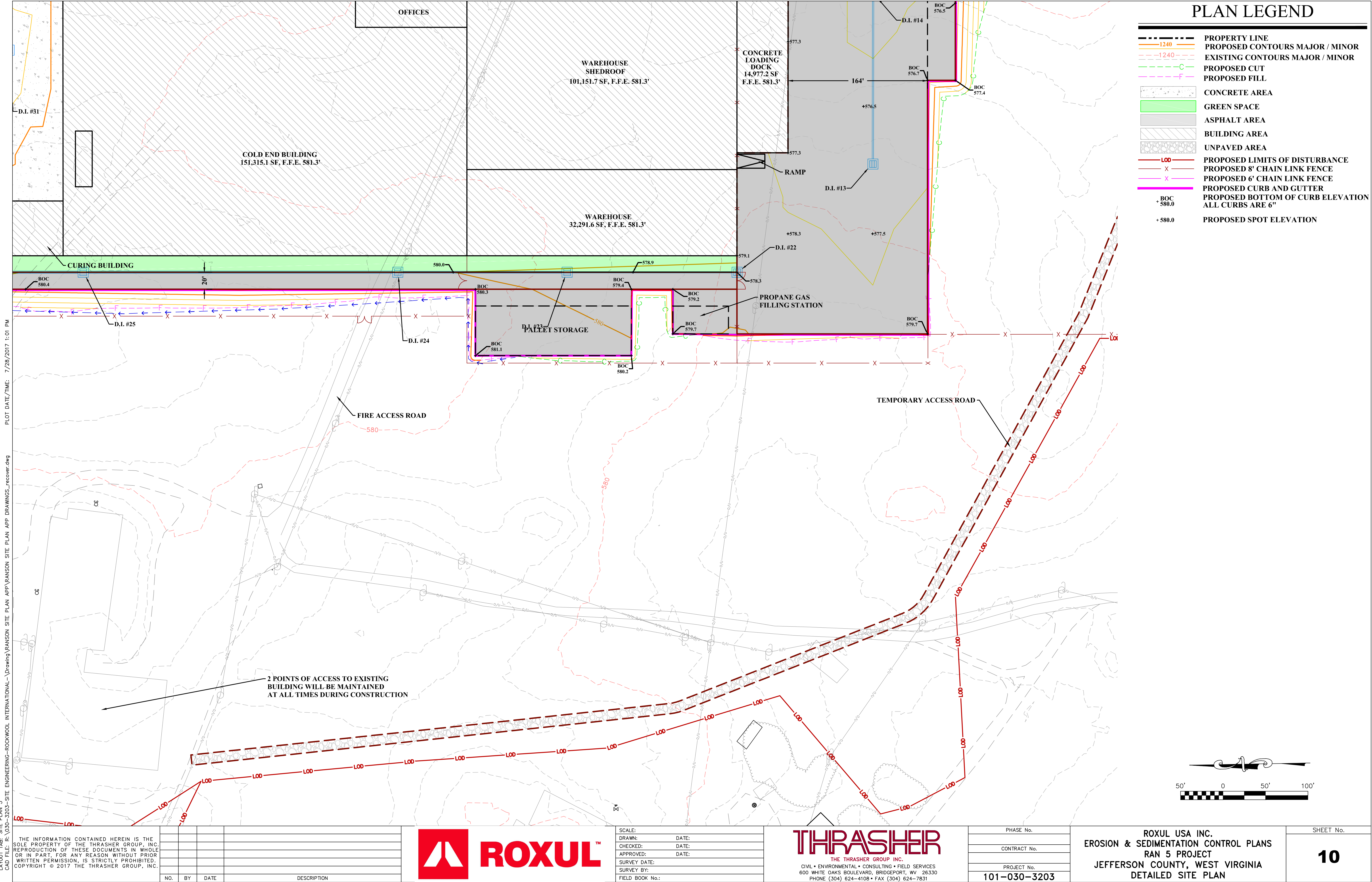
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JEFFERSON COUNTY, WEST VIRGINIA  
DETAILED SITE PLAN

SHEET No.
9





LAYOUT TAB: SITE PLAN 5  
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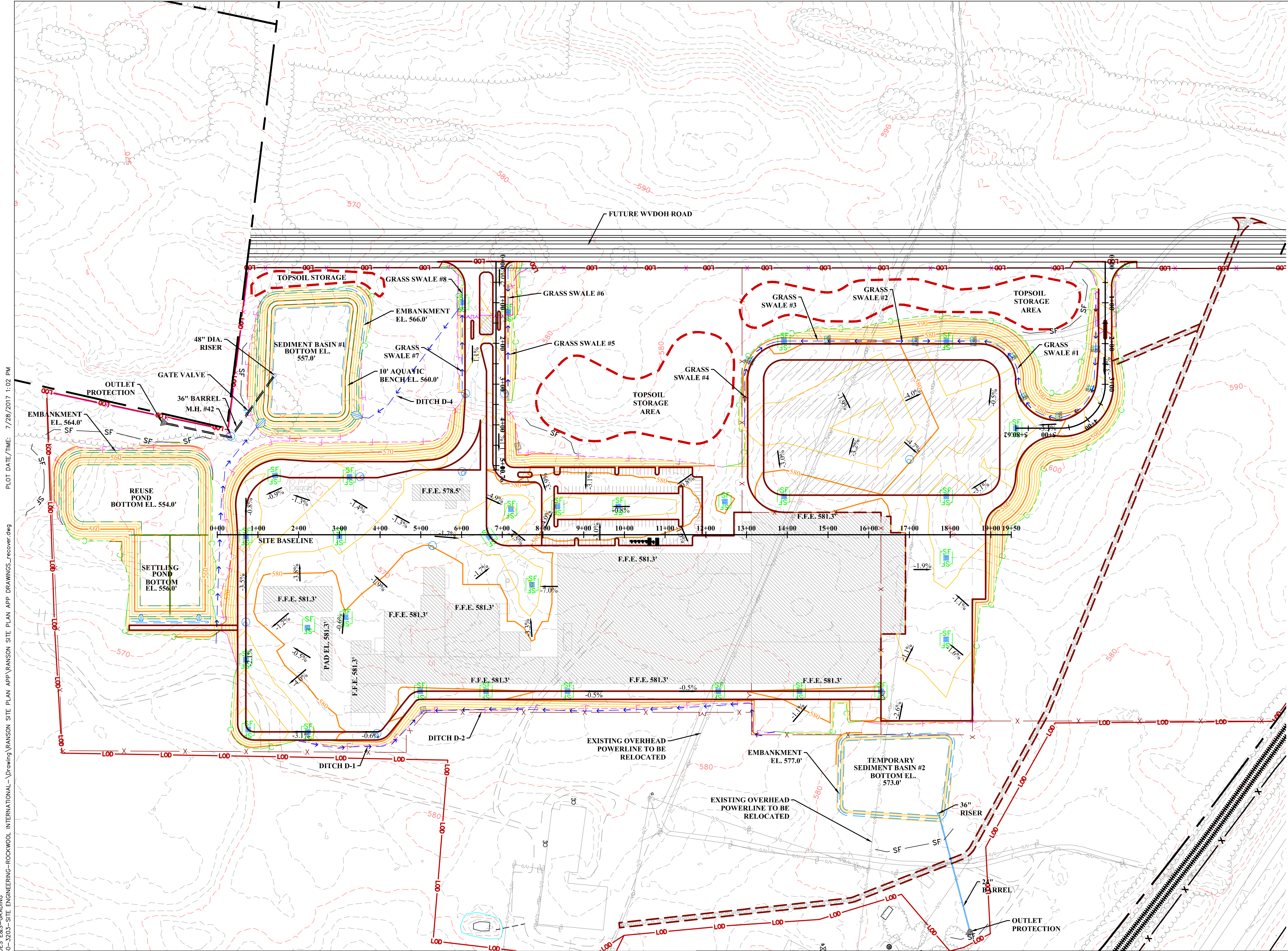
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PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- PROPOSED CUT
- PROPOSED FILL
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED 8' CHAIN LINK FENCE
- PROPOSED 6' CHAIN LINK FENCE
- PROPOSED TOPSOIL STORAGE AREA
- PROPOSED ROCK CHECK DAM

NOTES:

1. ALL PROPOSED SLOPES ARE 3:1.

LAYOUT TAB: NPDES E&S-GRADING  
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
GRADING PLAN

SHEET No.
11



LAYOUT TAB: STORMWATER PLAN  
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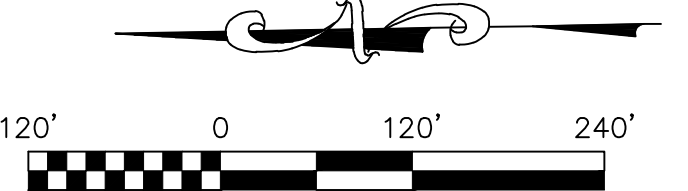
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JEFFERSON COUNTY, WEST VIRGINIA  
STORMWATER PLAN

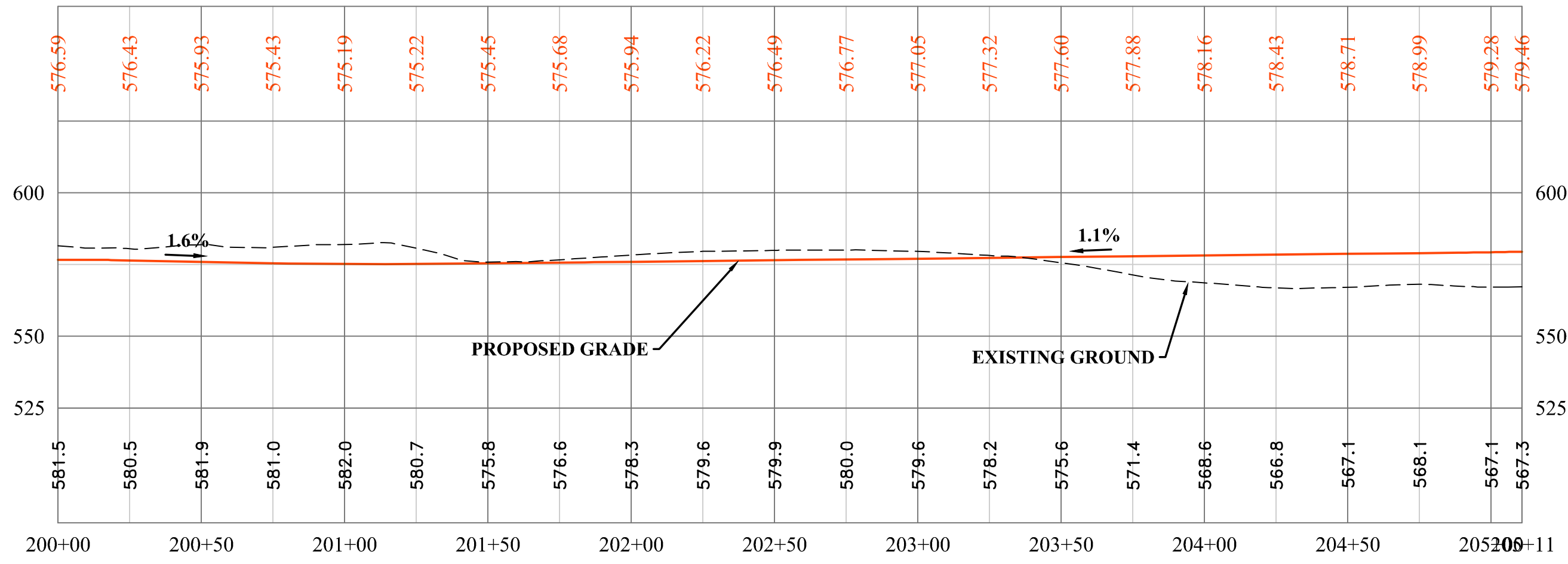
SHEET No.
12

## PLAN LEGEND

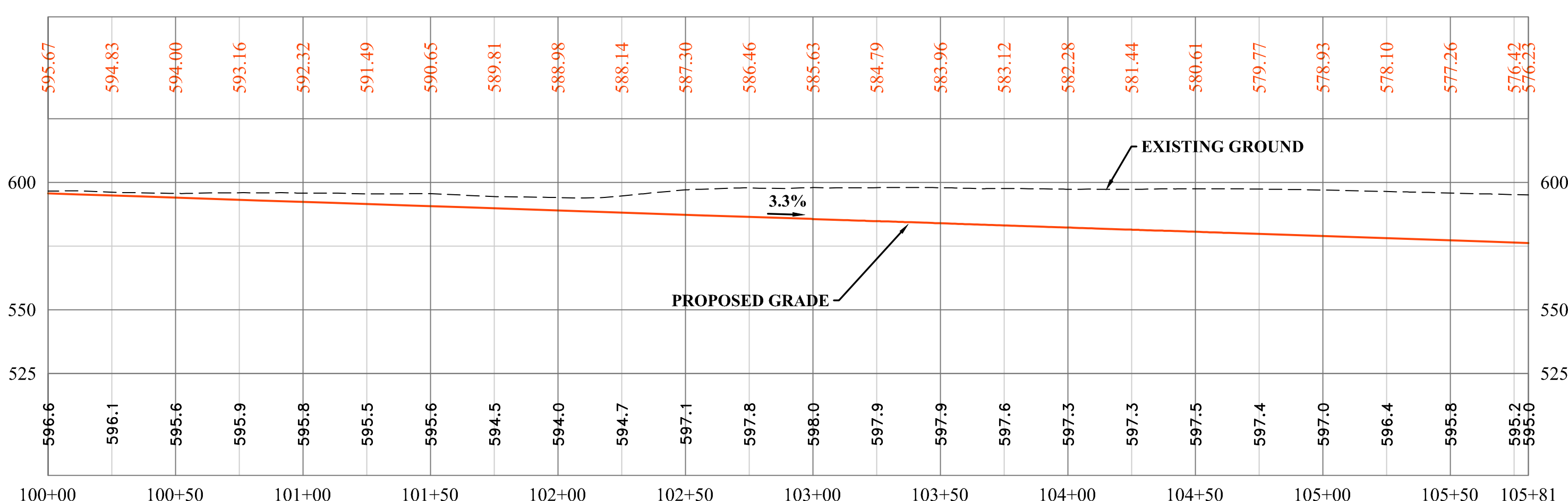
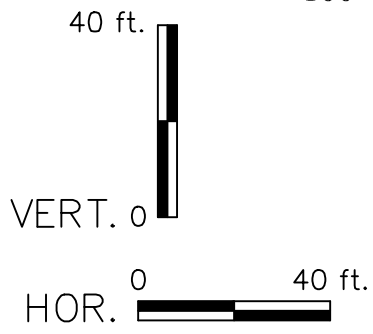
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- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- DROP INLET
- MANHOLE
- HDPE PIPE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED DITCH
- BIORETENTION AREA
- PROPOSED ROCK CHECK DAM
- PROPOSED ROOF DRAIN COLLECTION PIPES (TO BE PART OF THE BUILDING DESIGN)



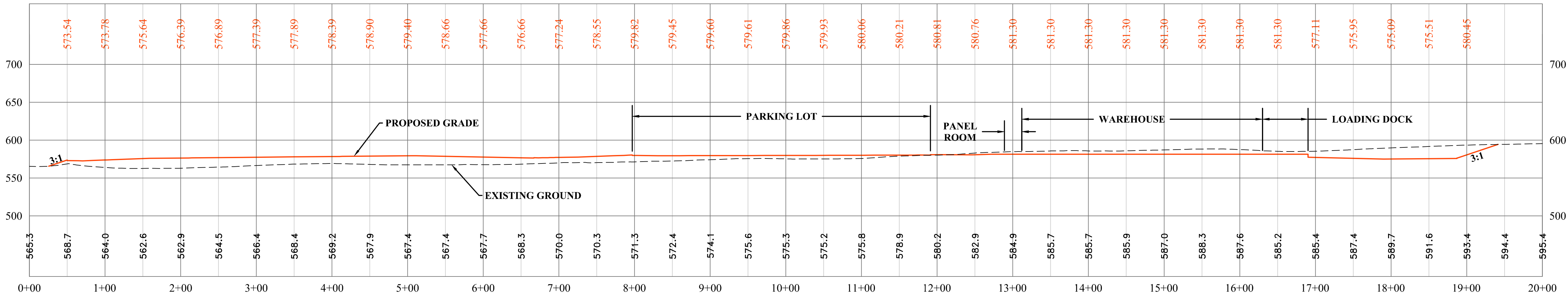




**RAW MATERIALS / EMPLOYEE  
ENTRANCE & EXIT PROFILE**  
SCALE 1"=40'



**FINISHED GOODS  
ENTRANCE & EXIT PROFILE**  
SCALE 1"=40'



**SITE BASELINE PROFILE**  
SCALE 1"=80'



LAYOUT TAB: SITE PROFILES

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ROXUL USA INC. EROSION & SEDIMENTATION CONTROL PLANS RAN 5 PROJECT JEFFERSON COUNTY, WEST VIRGINIA STADIN PROFILES
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13



LAYOUT TAB: SECTIONS

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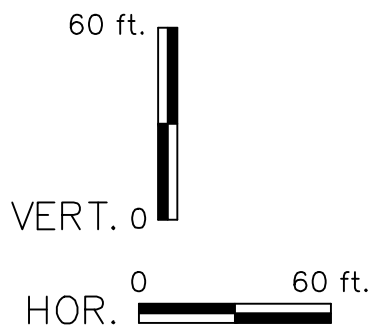
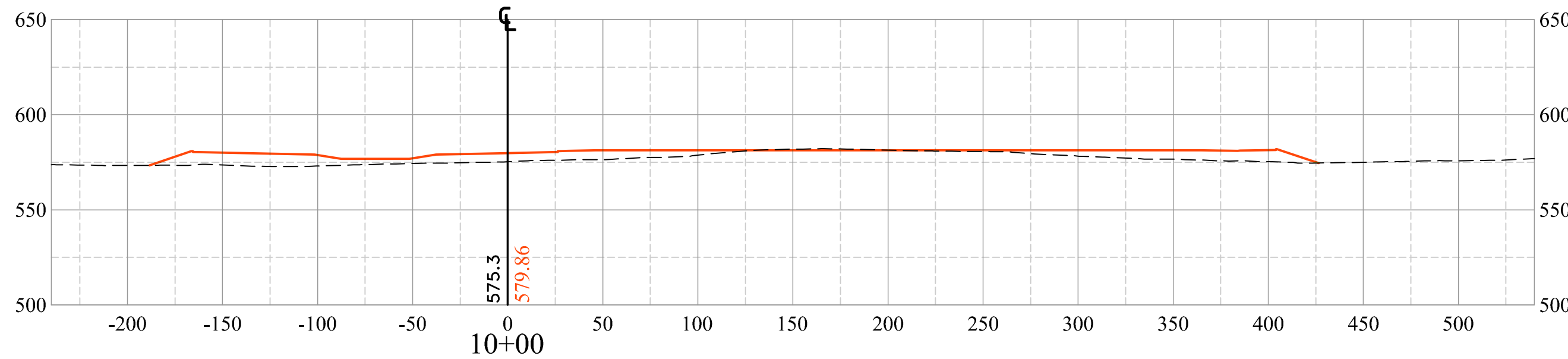
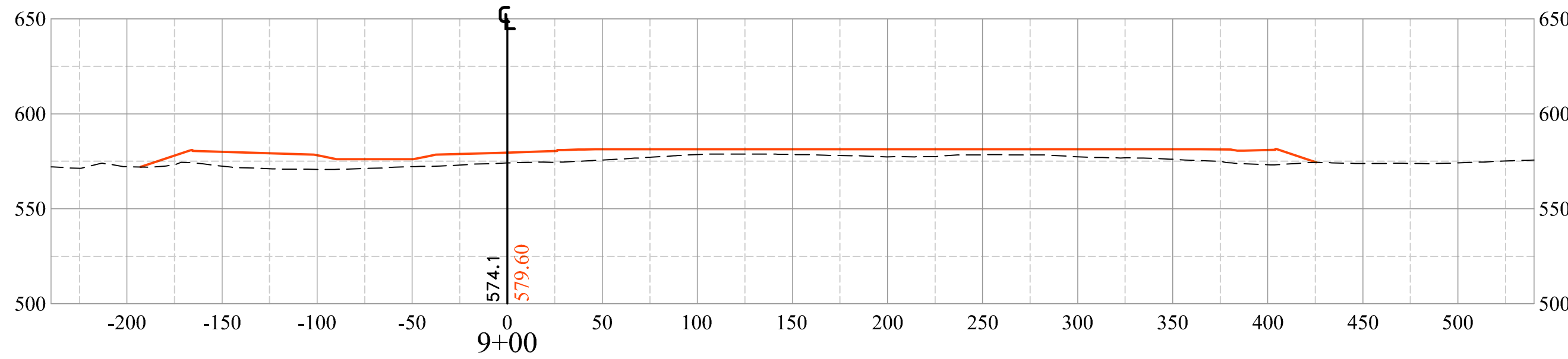
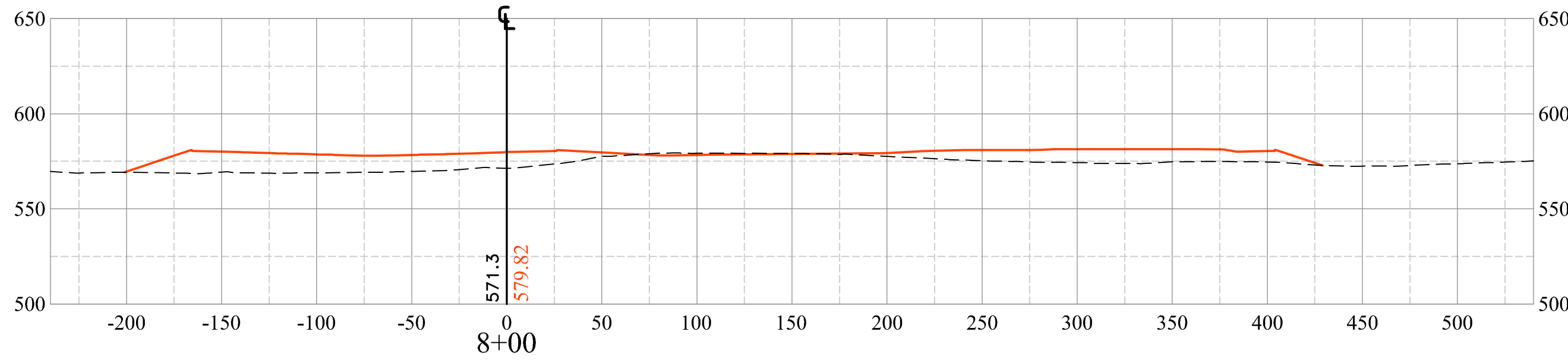
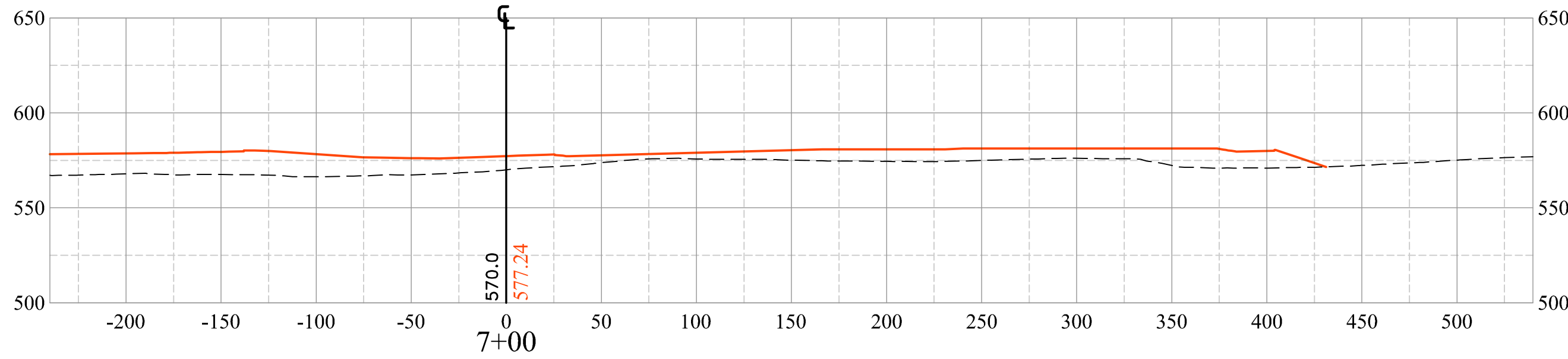
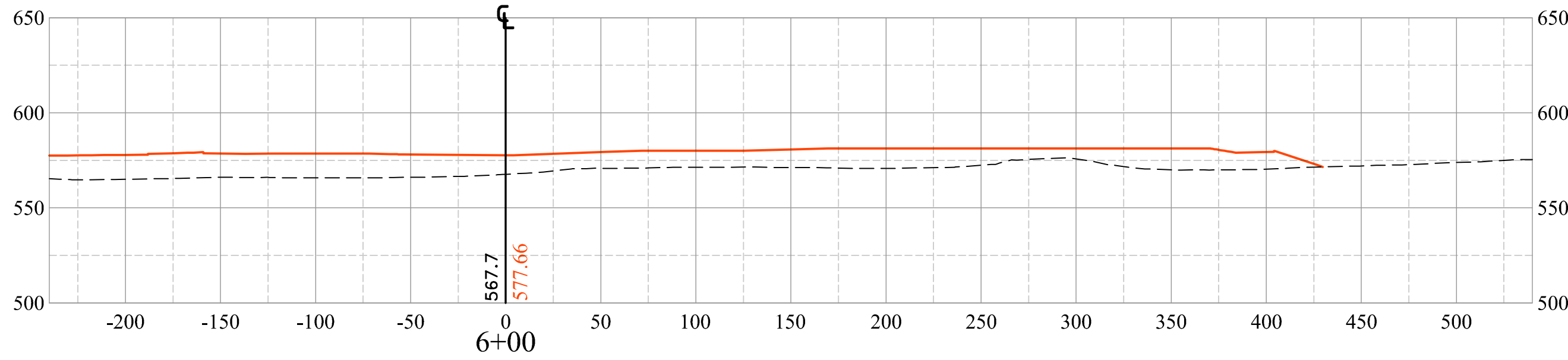
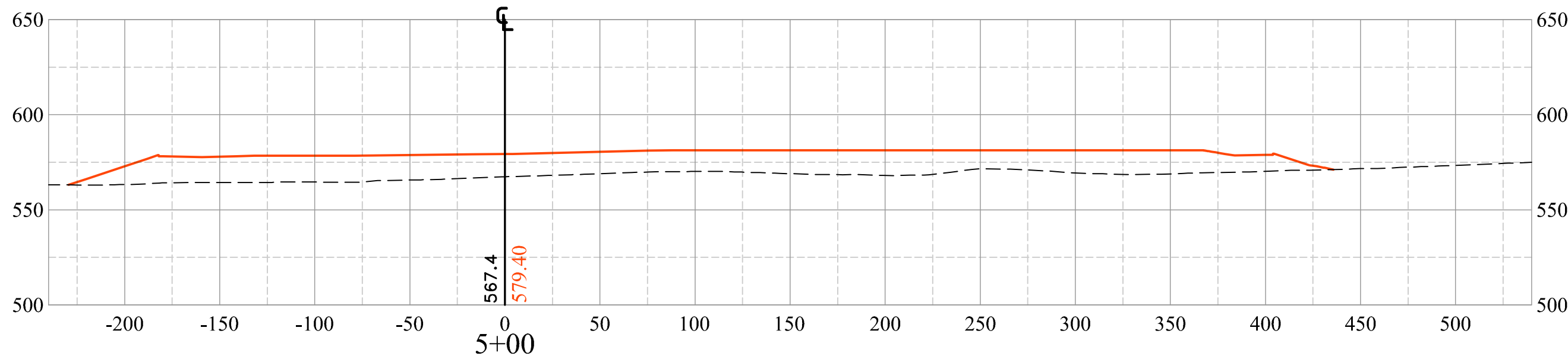
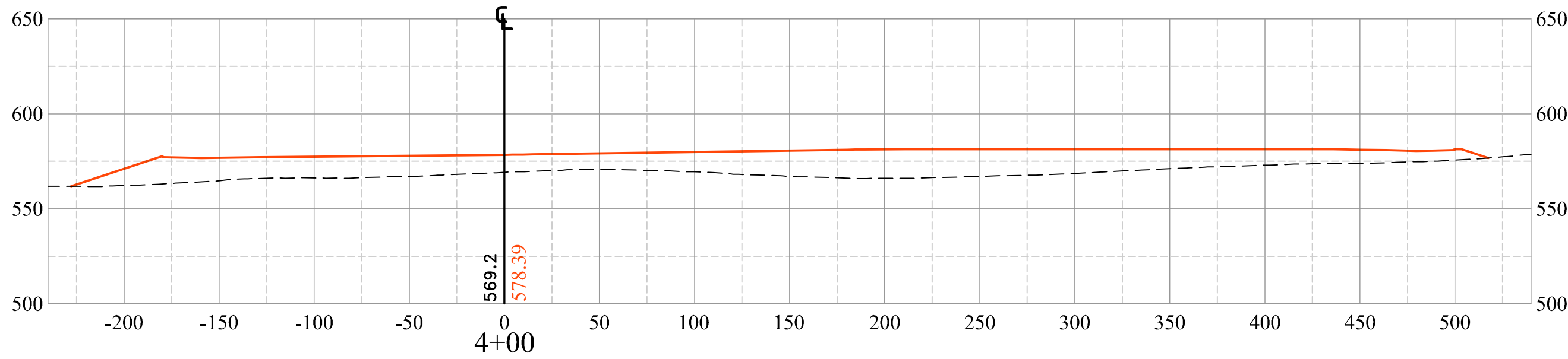
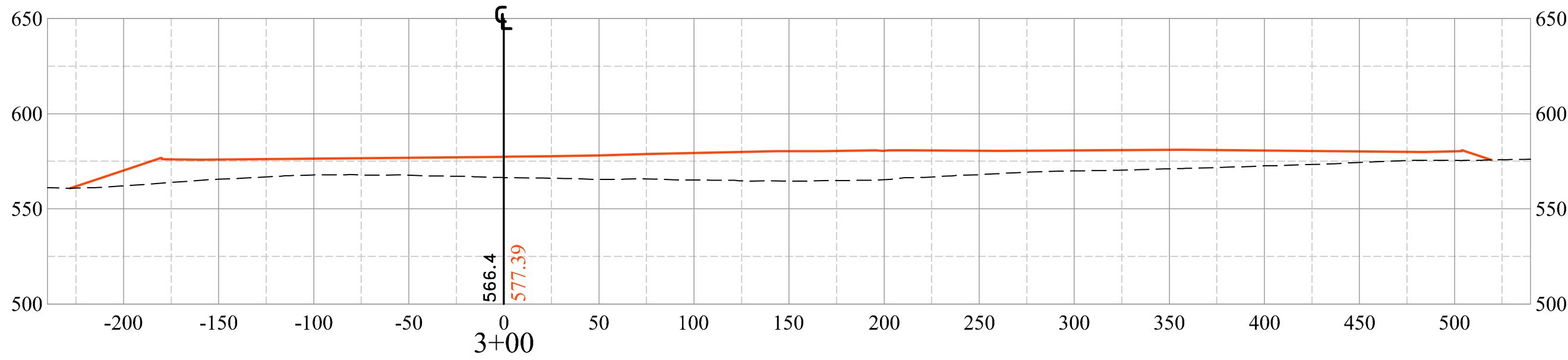
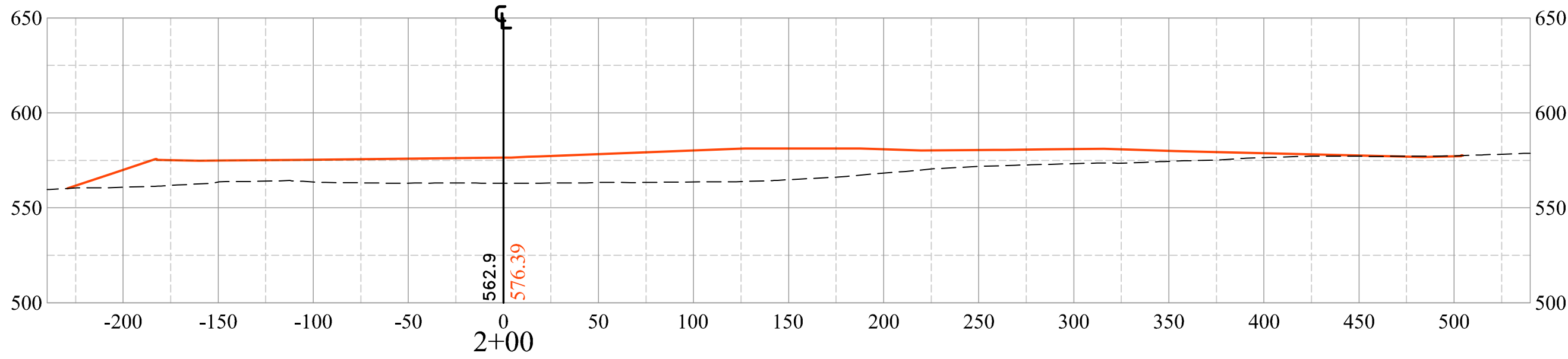
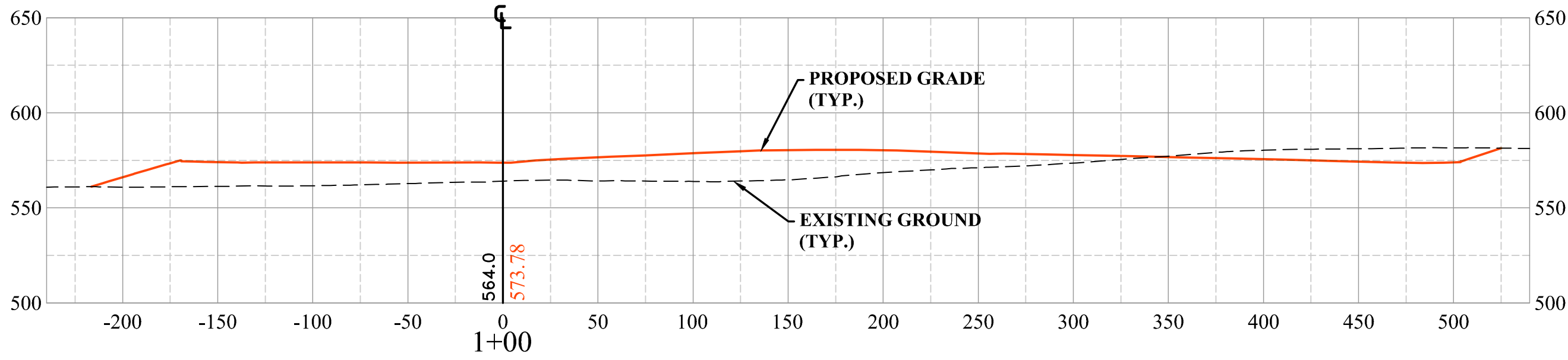
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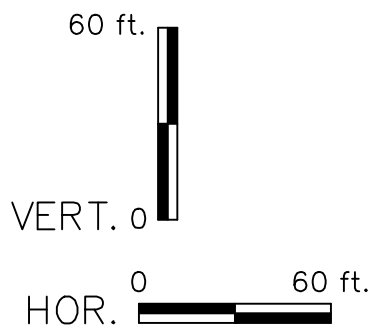
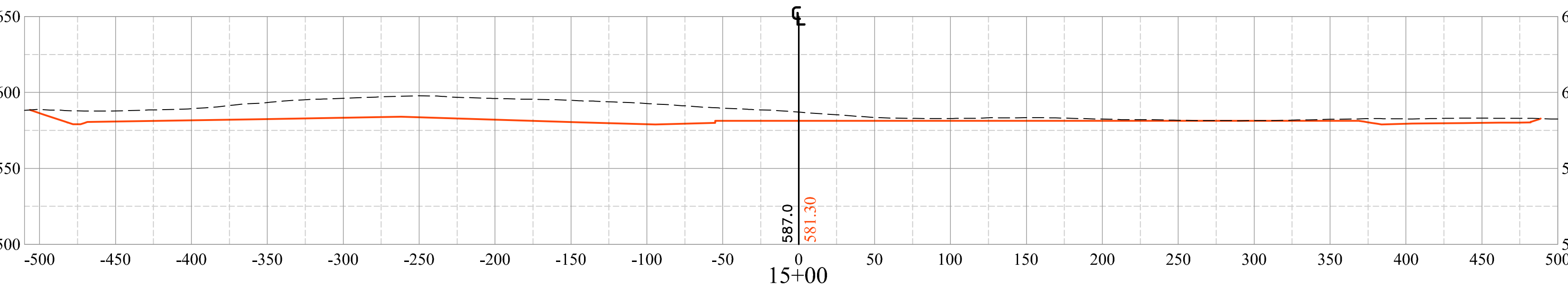
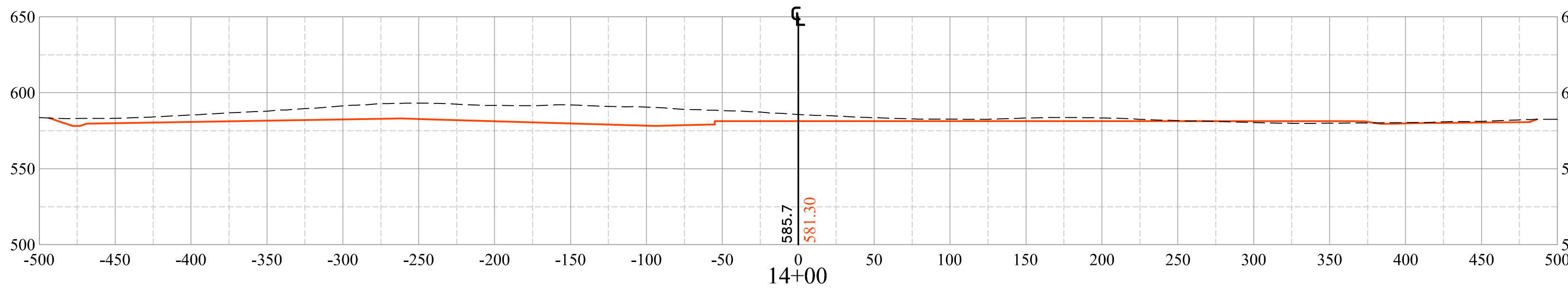
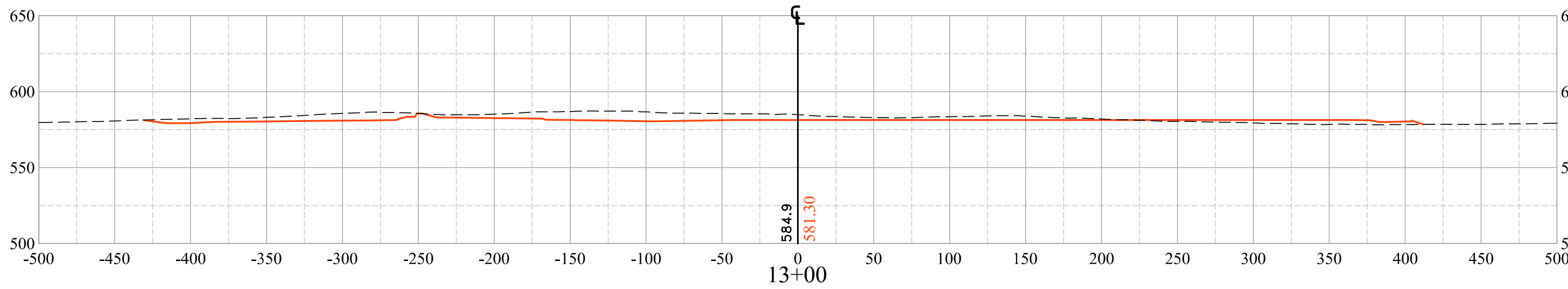
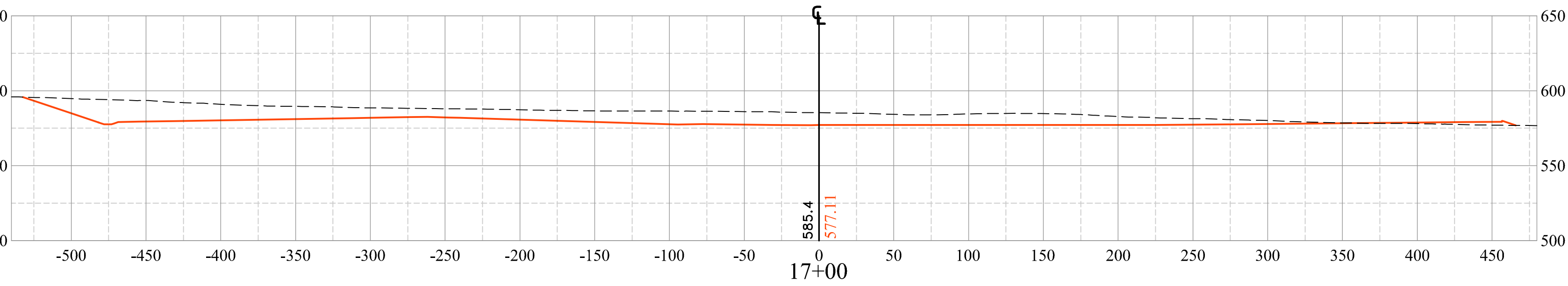
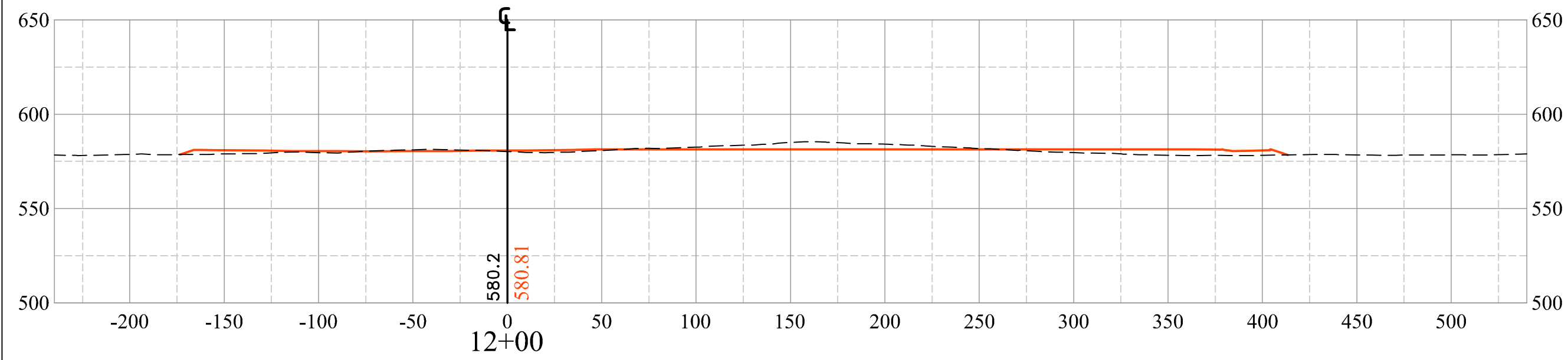
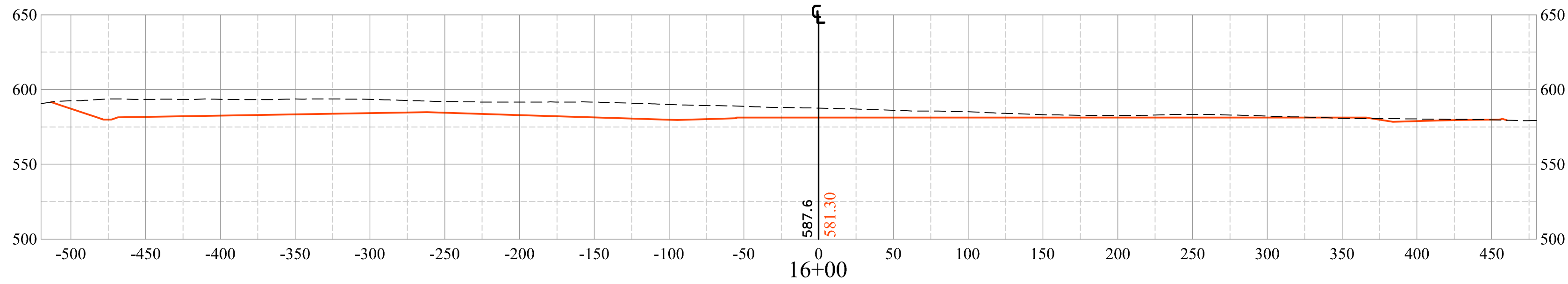
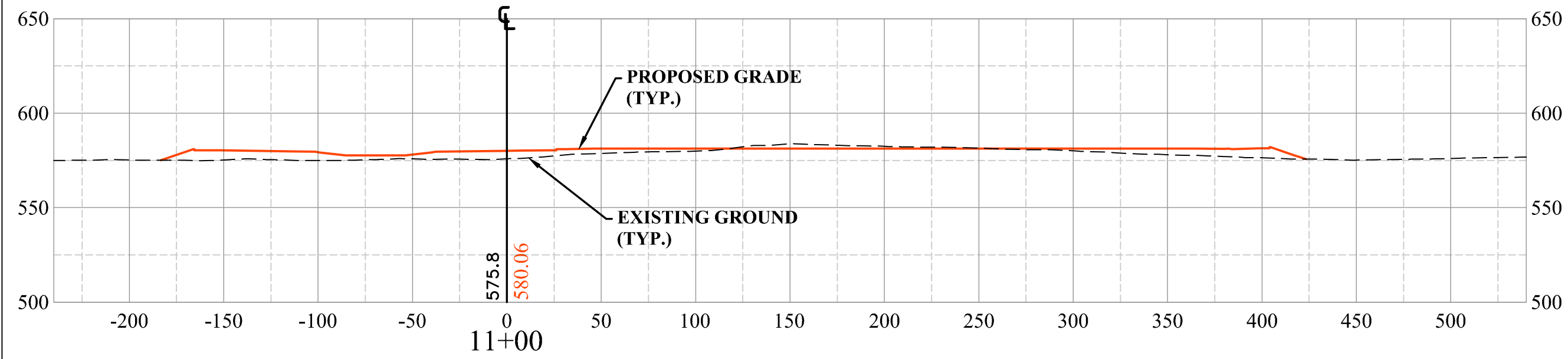
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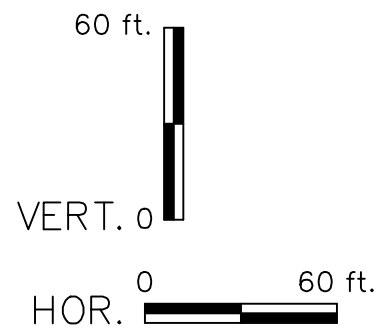
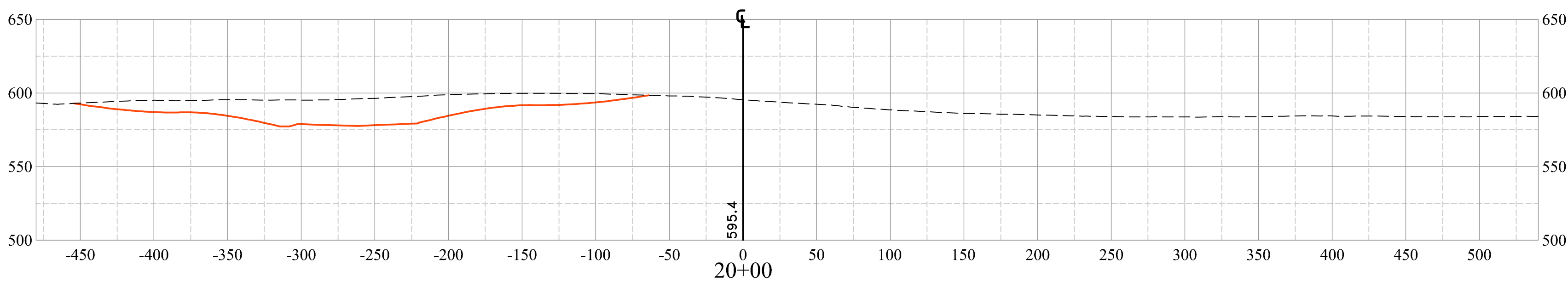
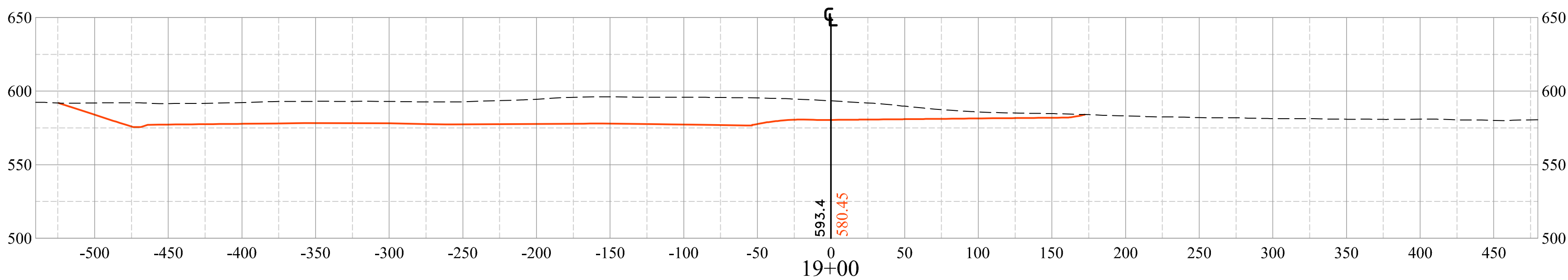
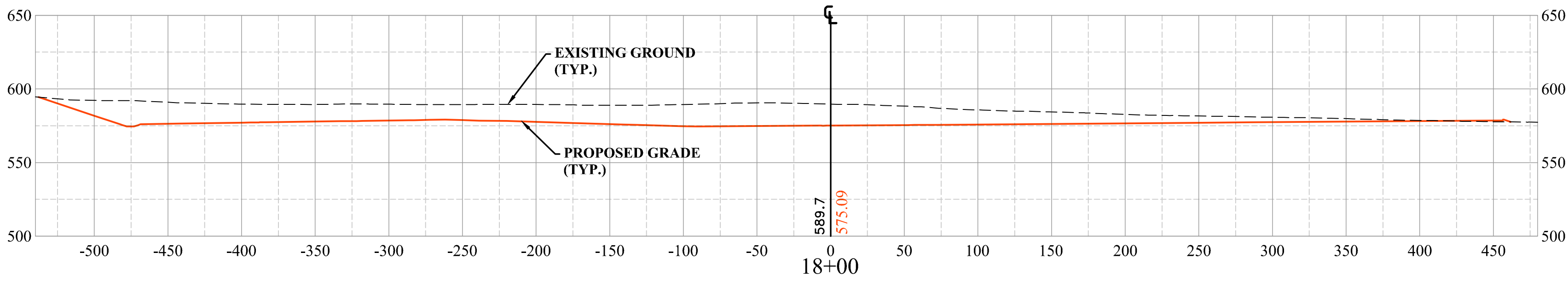
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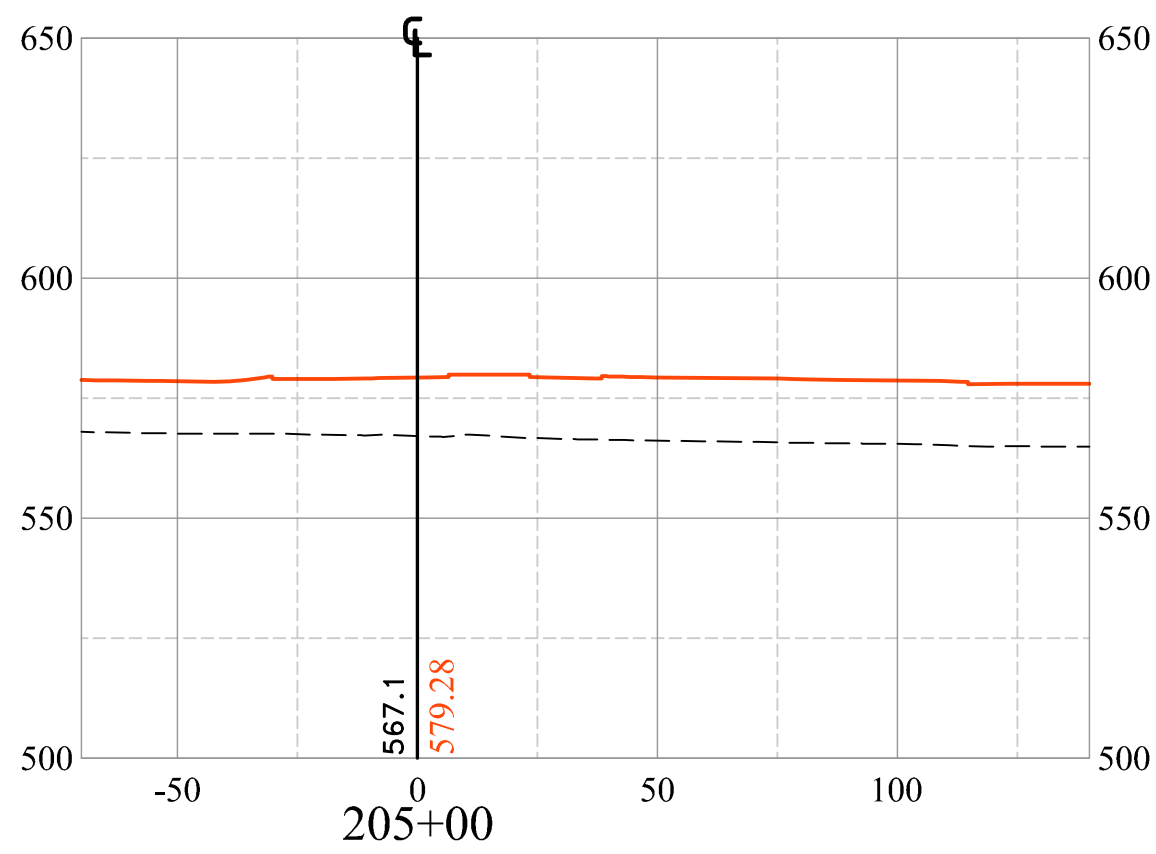
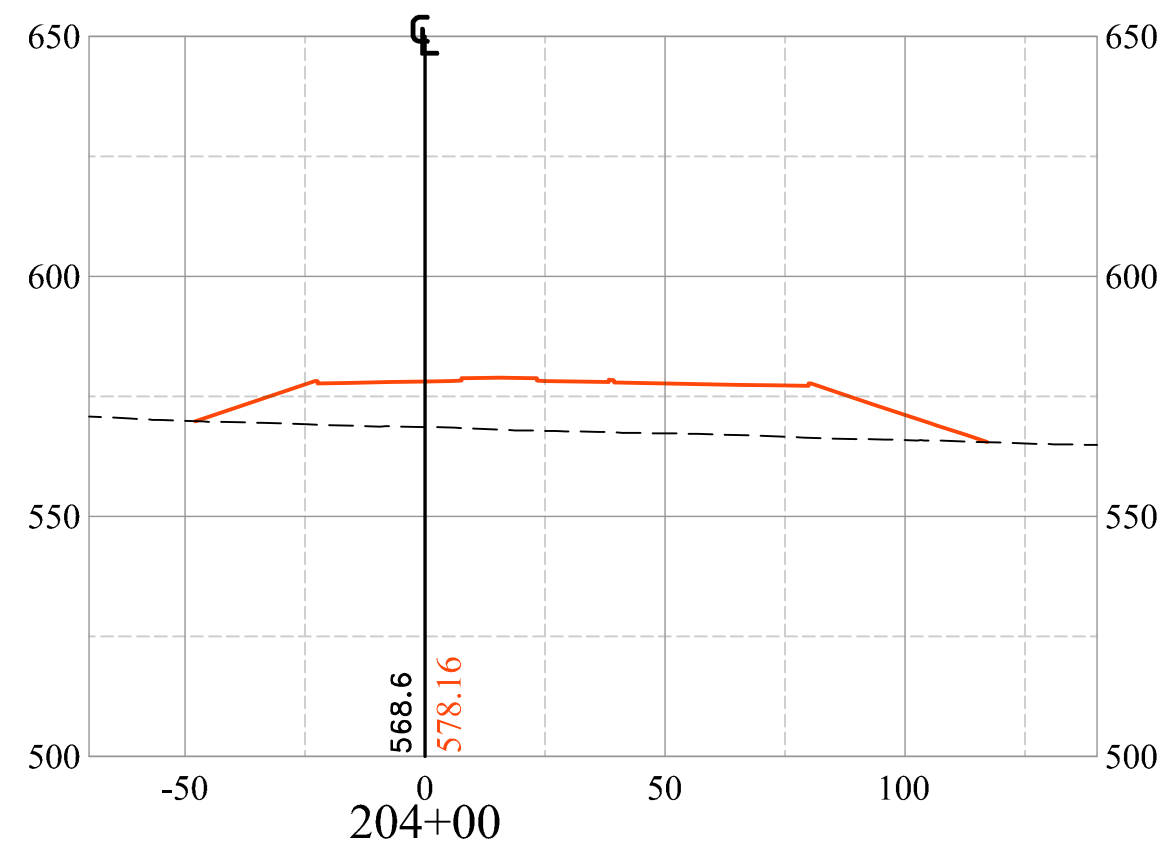
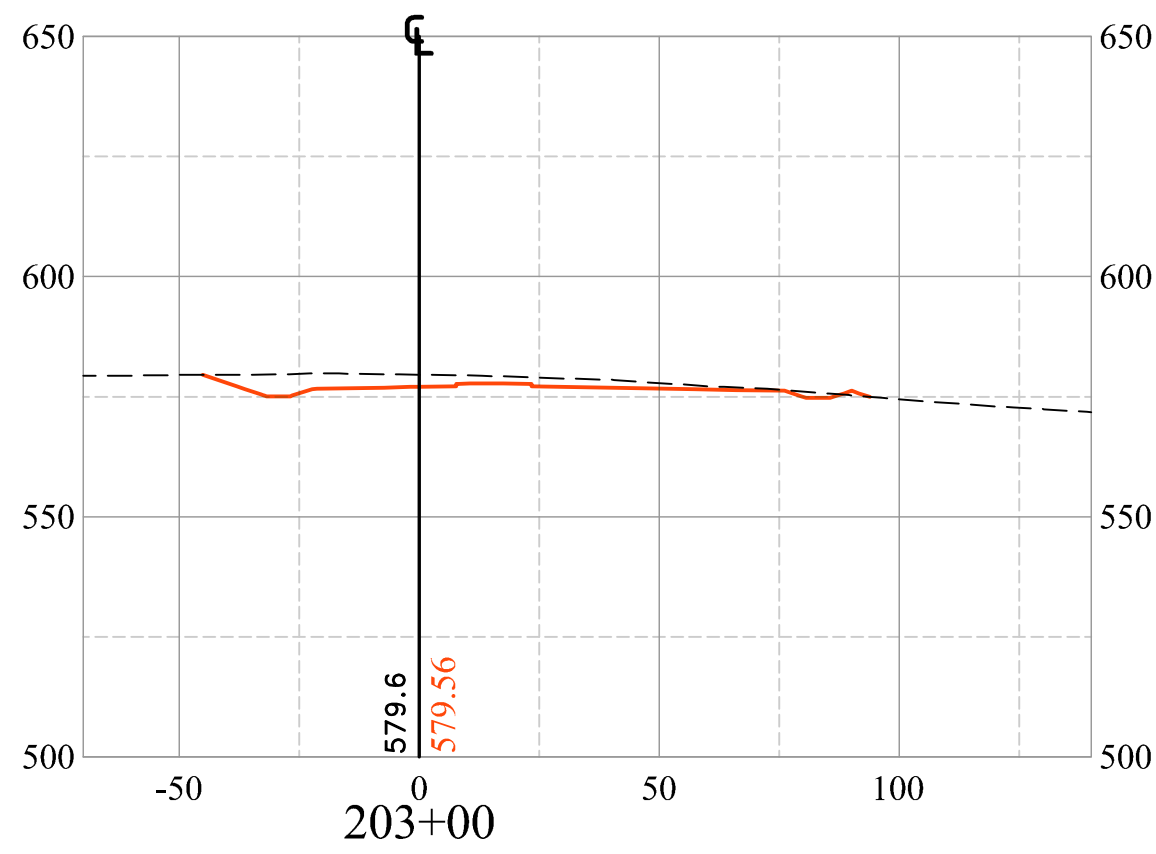
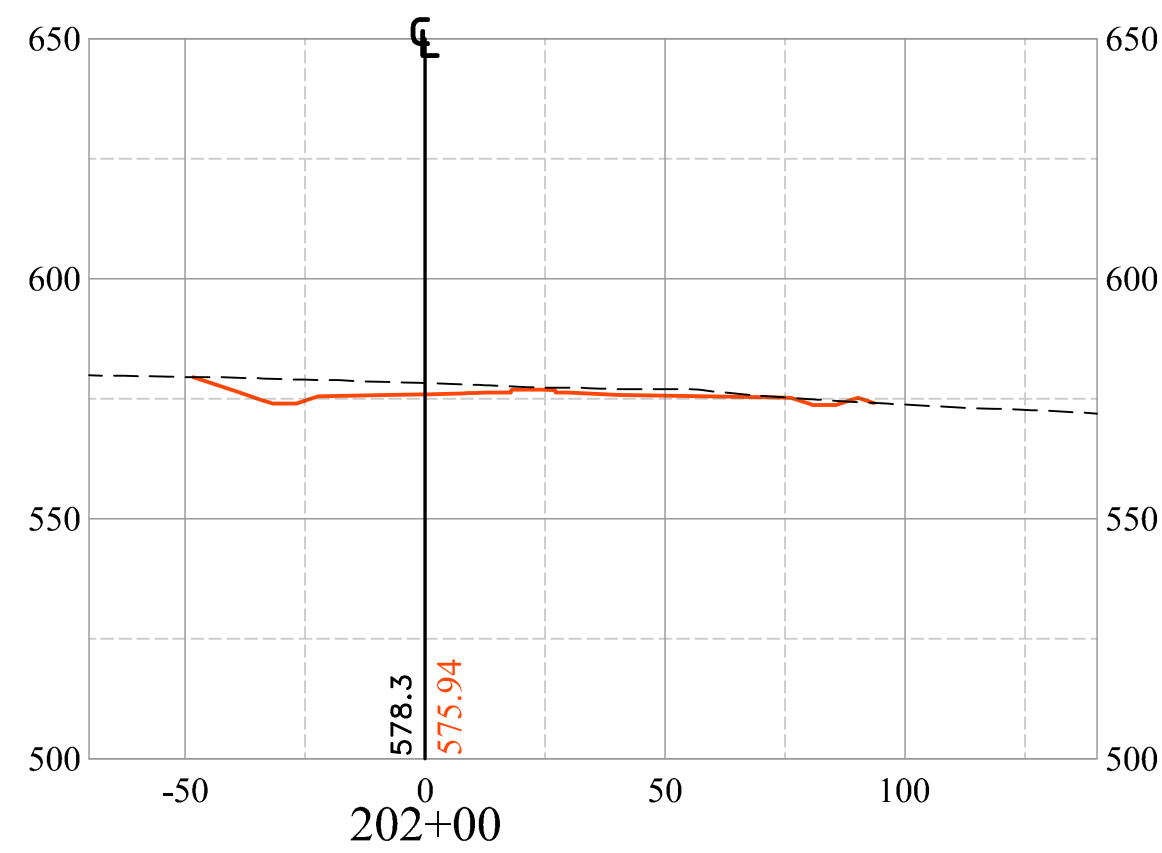
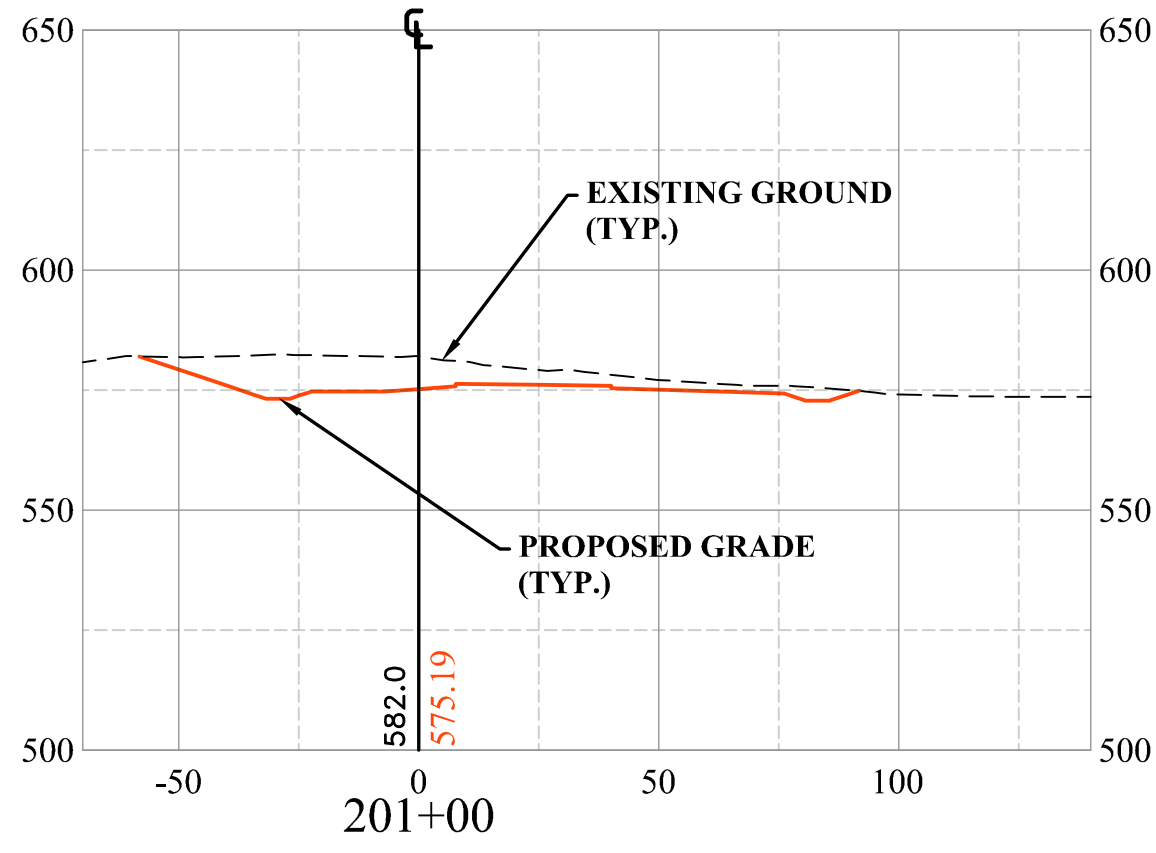


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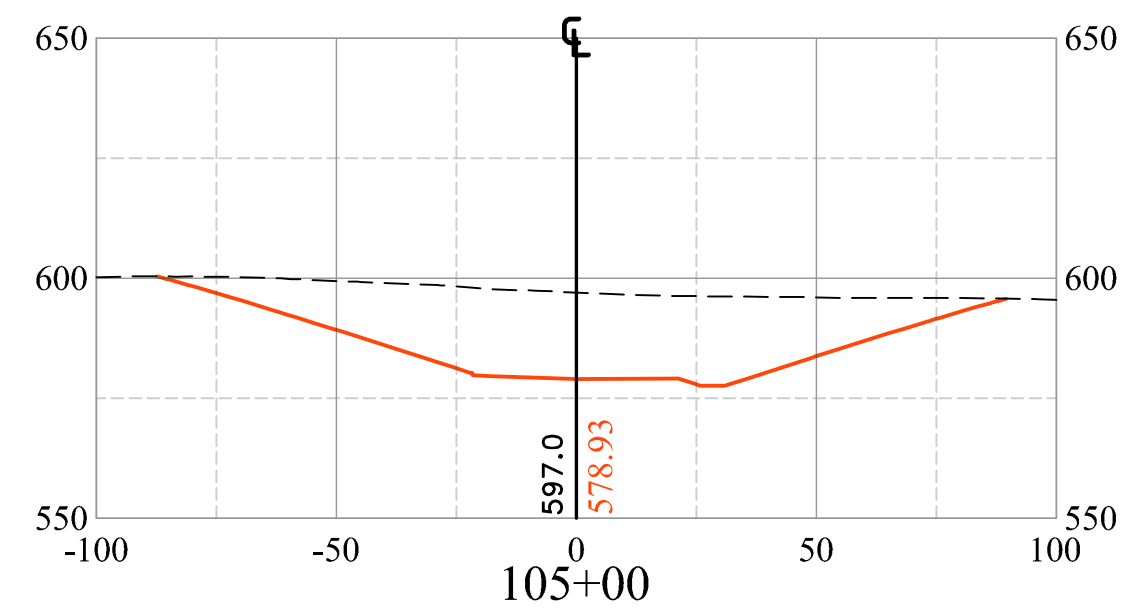
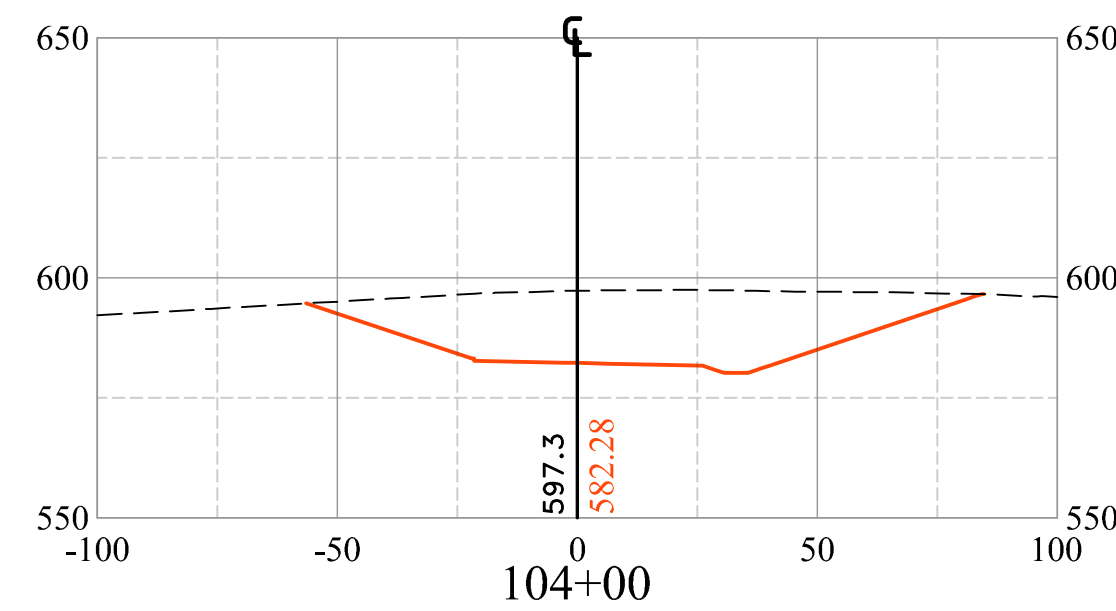
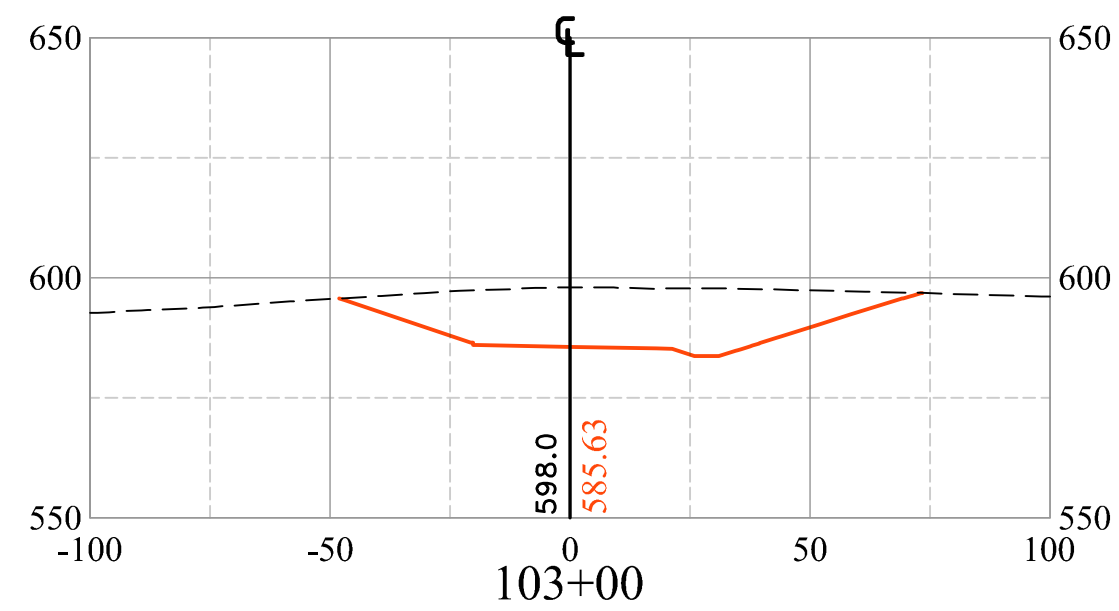
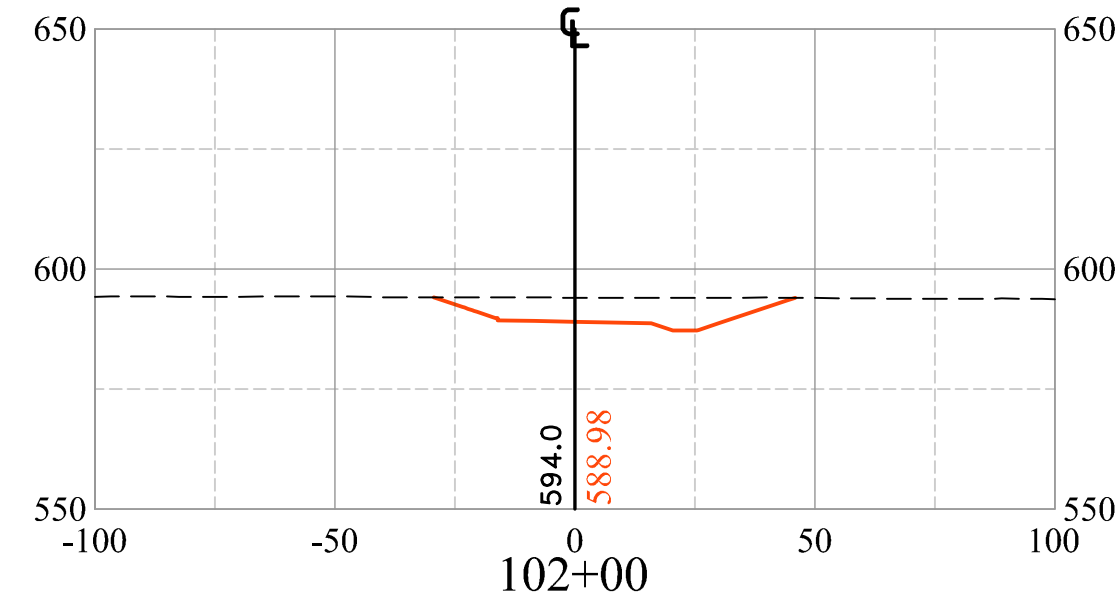
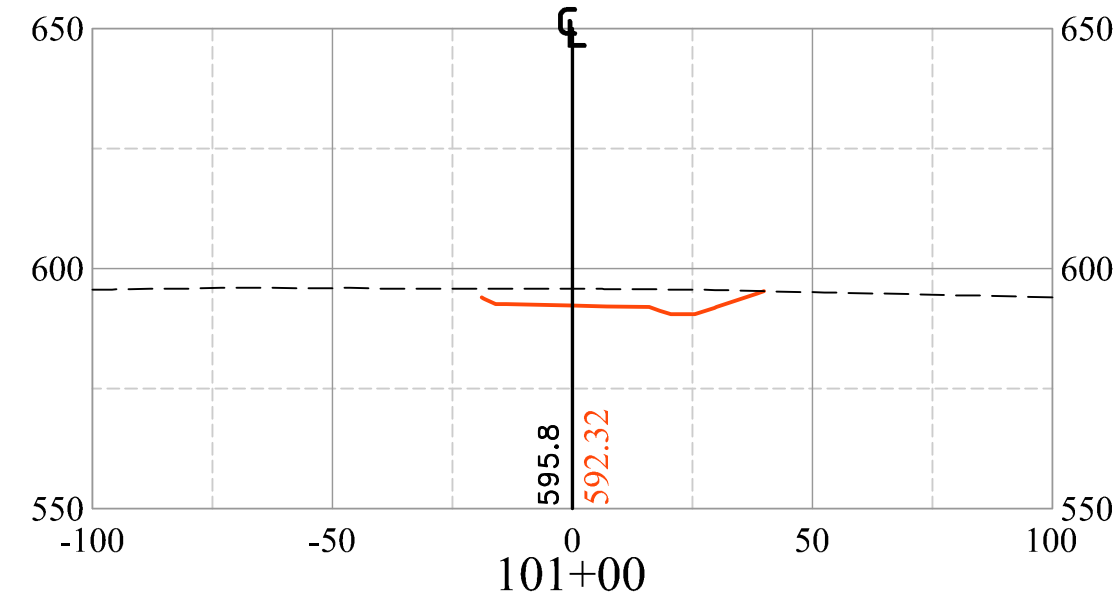
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
BASELINE CROSS SECTIONS

SHEET No.
16

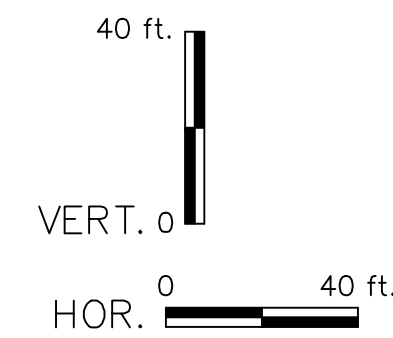




**RAW MATERIALS & EMPLOYEE ROAD SECTIONS**  
SCALE 1"=40'



**FINISHED GOODS ROAD SECTIONS**  
SCALE 1"=40'



LAYOUT TAB: SECTIONS (4)

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PROJECT No.
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JEFFERSON COUNTY, WEST VIRGINIA  
ROAD CROSS SECTIONS

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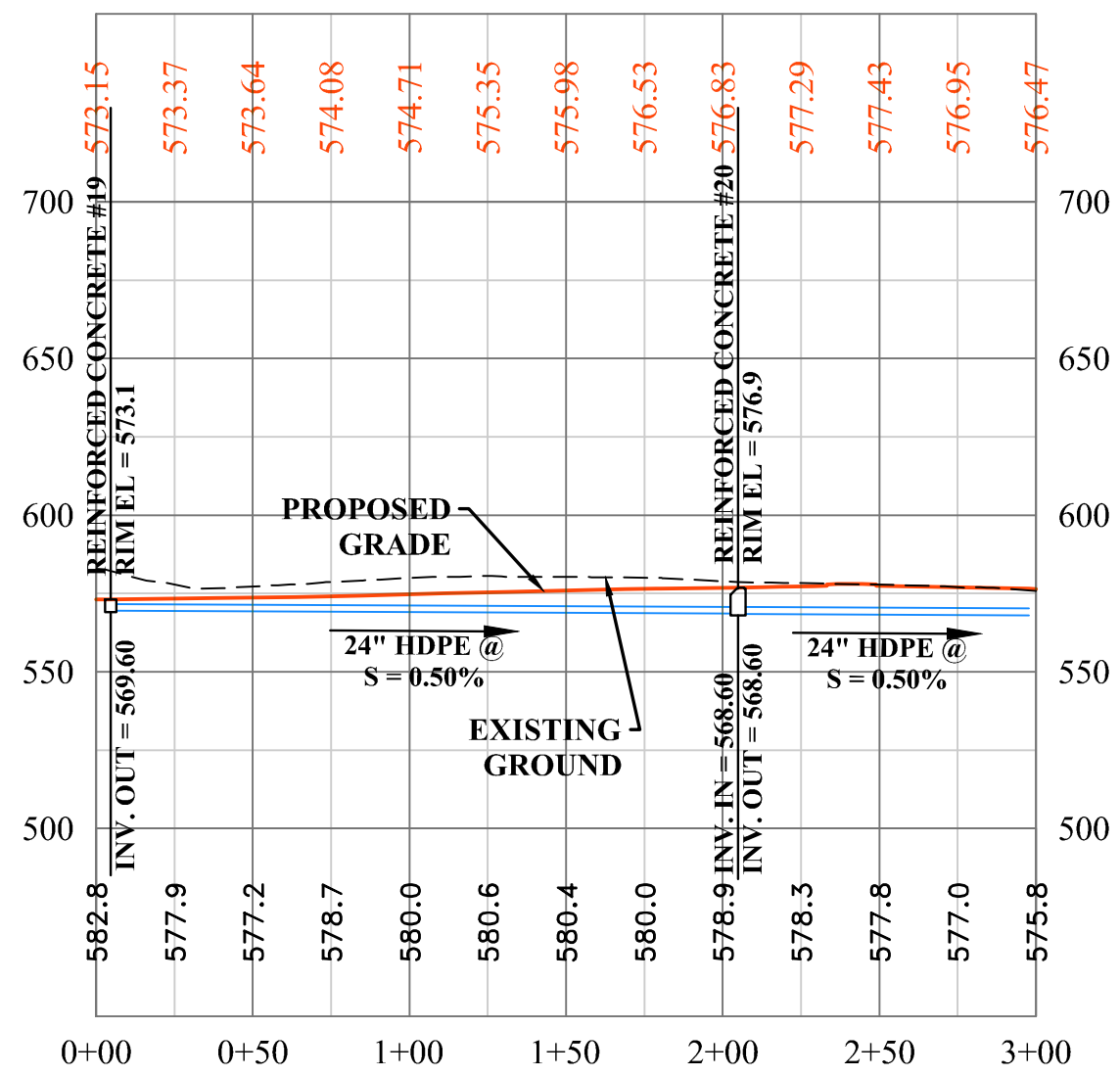
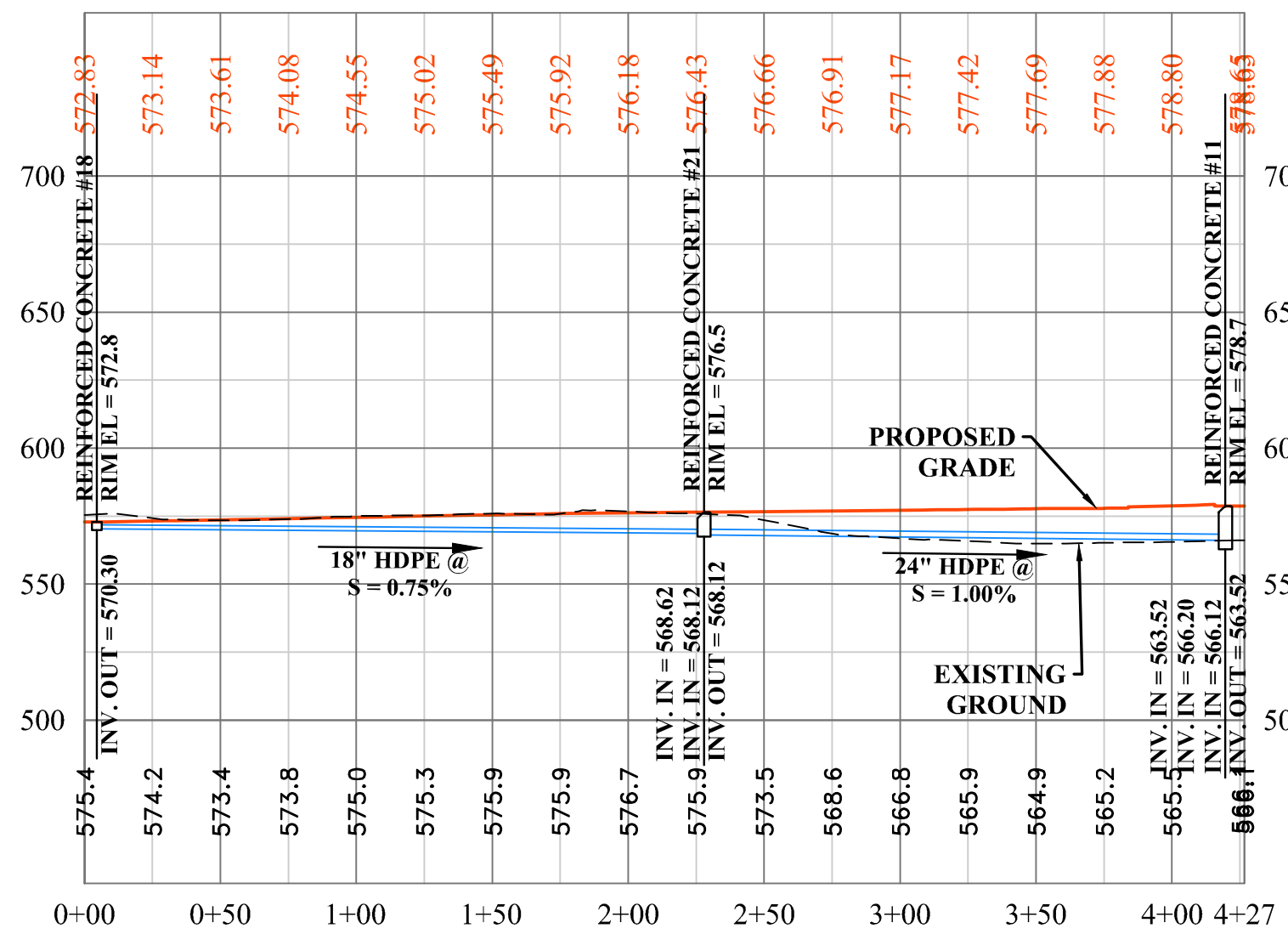
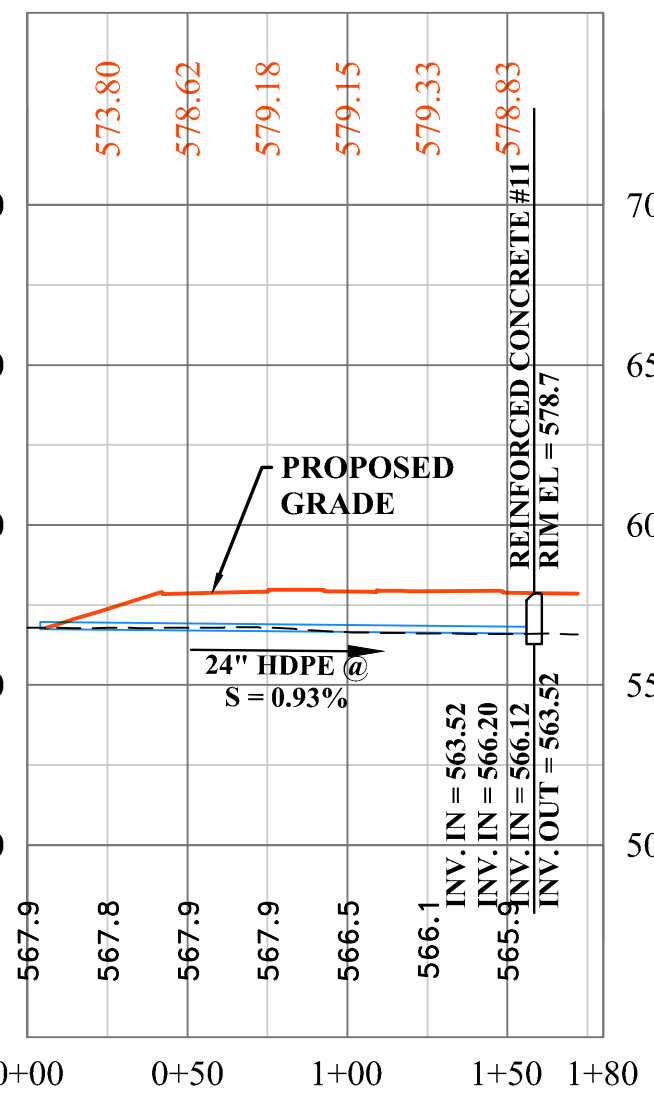
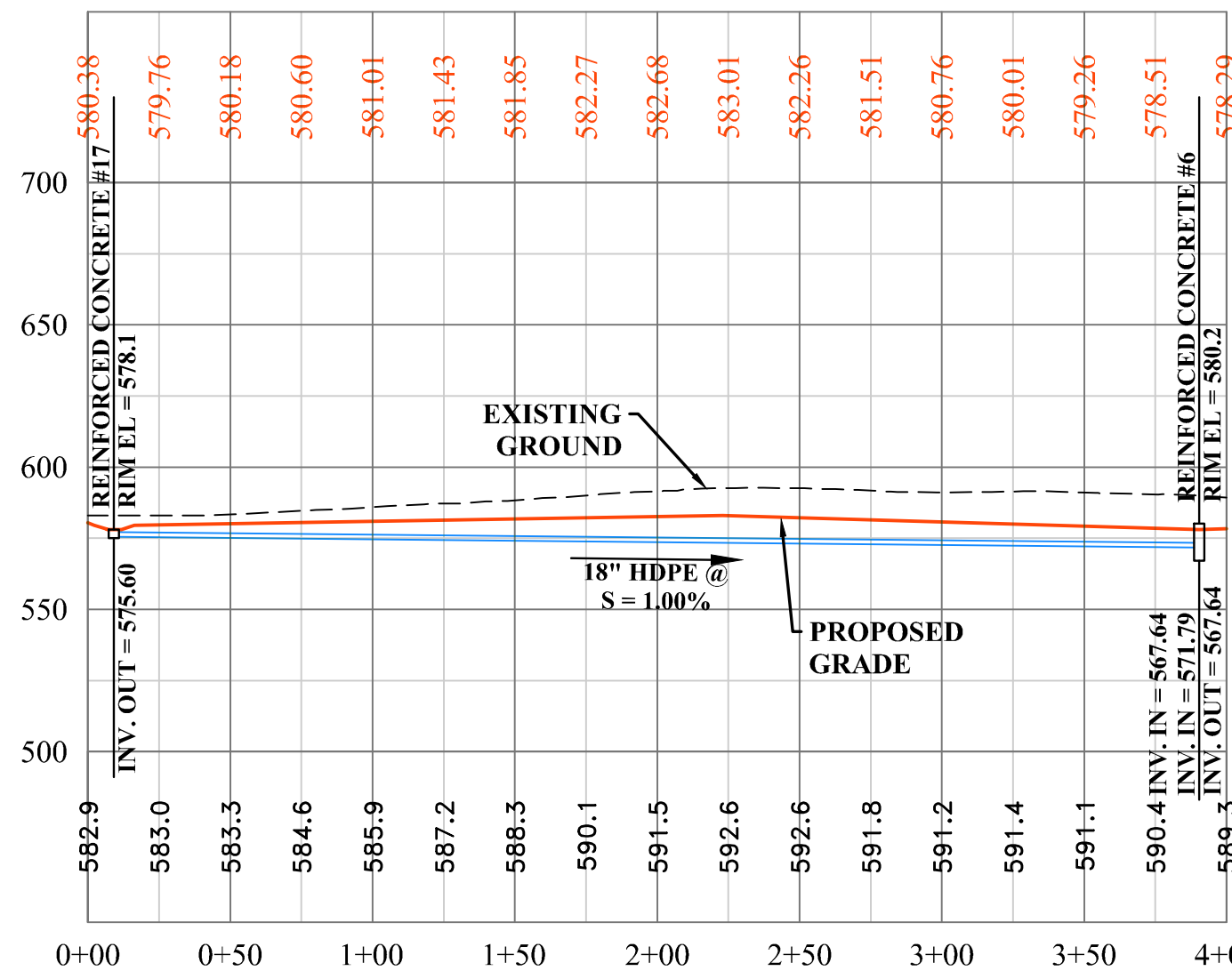
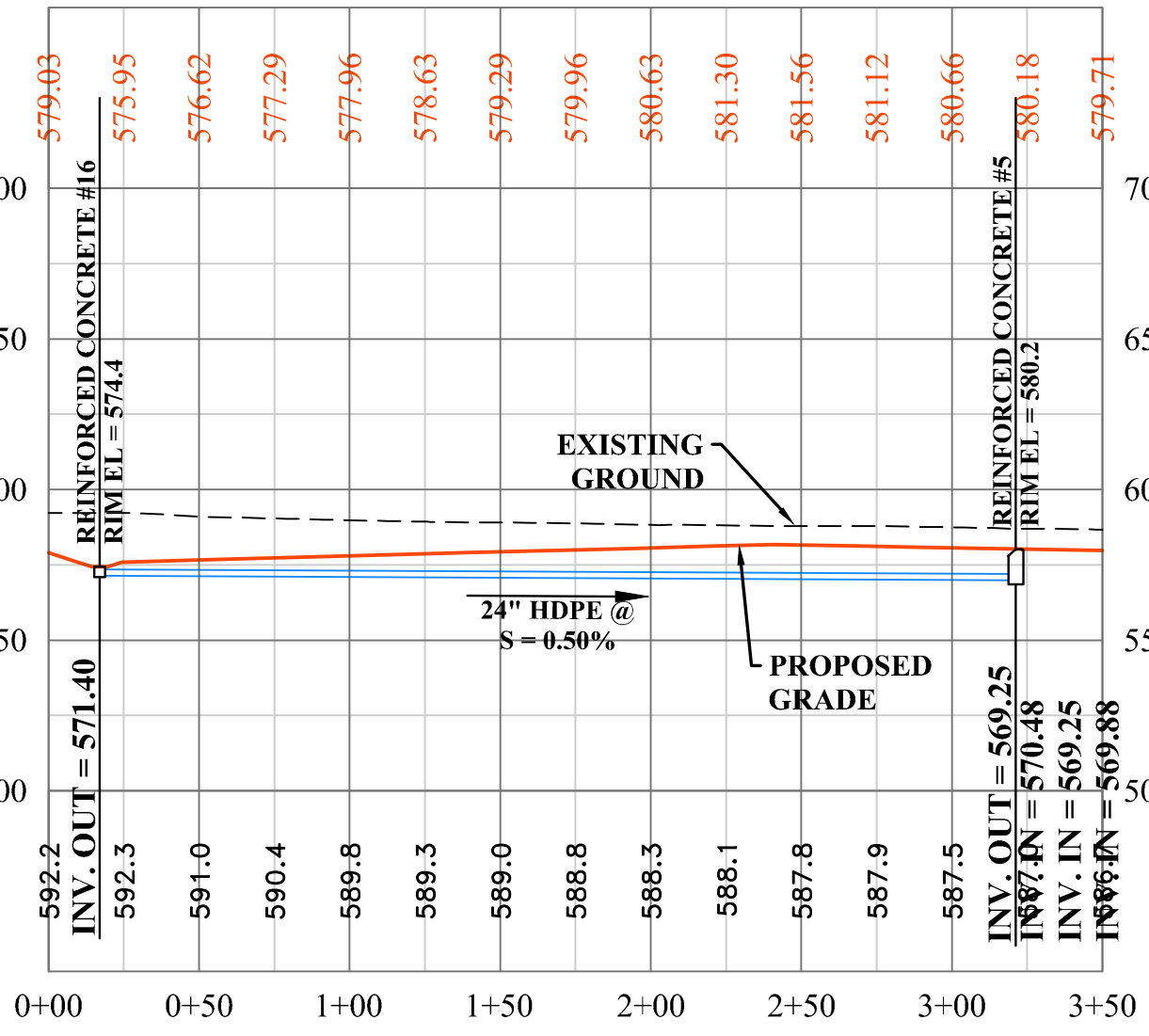
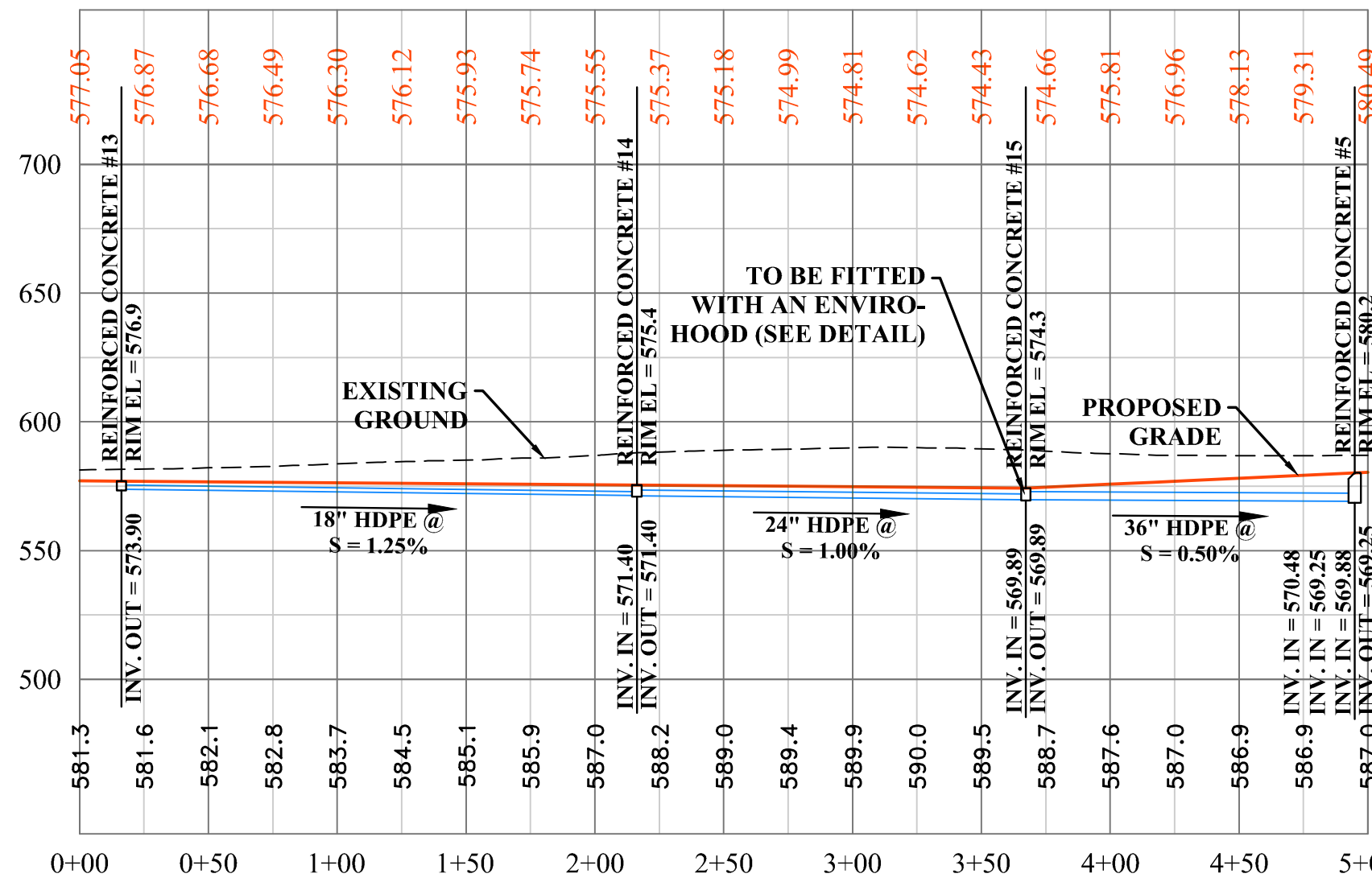
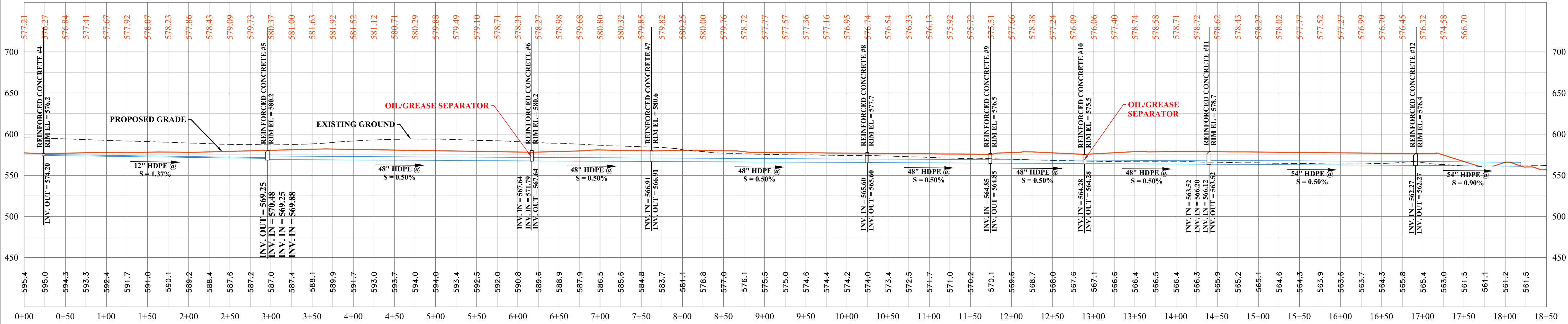


PHASE No.
CONTRACT No.
PROJECT No.
<b>101-030-3203</b>

ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
STORMWATER PROFILES

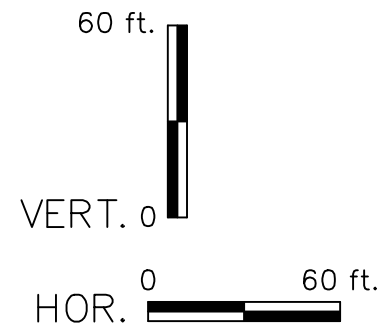
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18

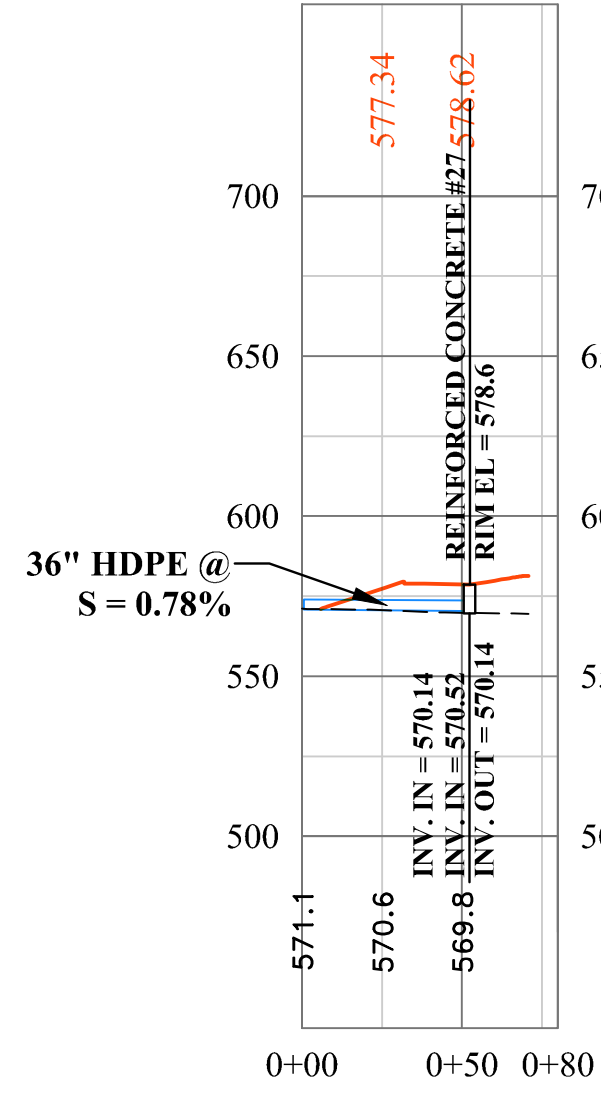
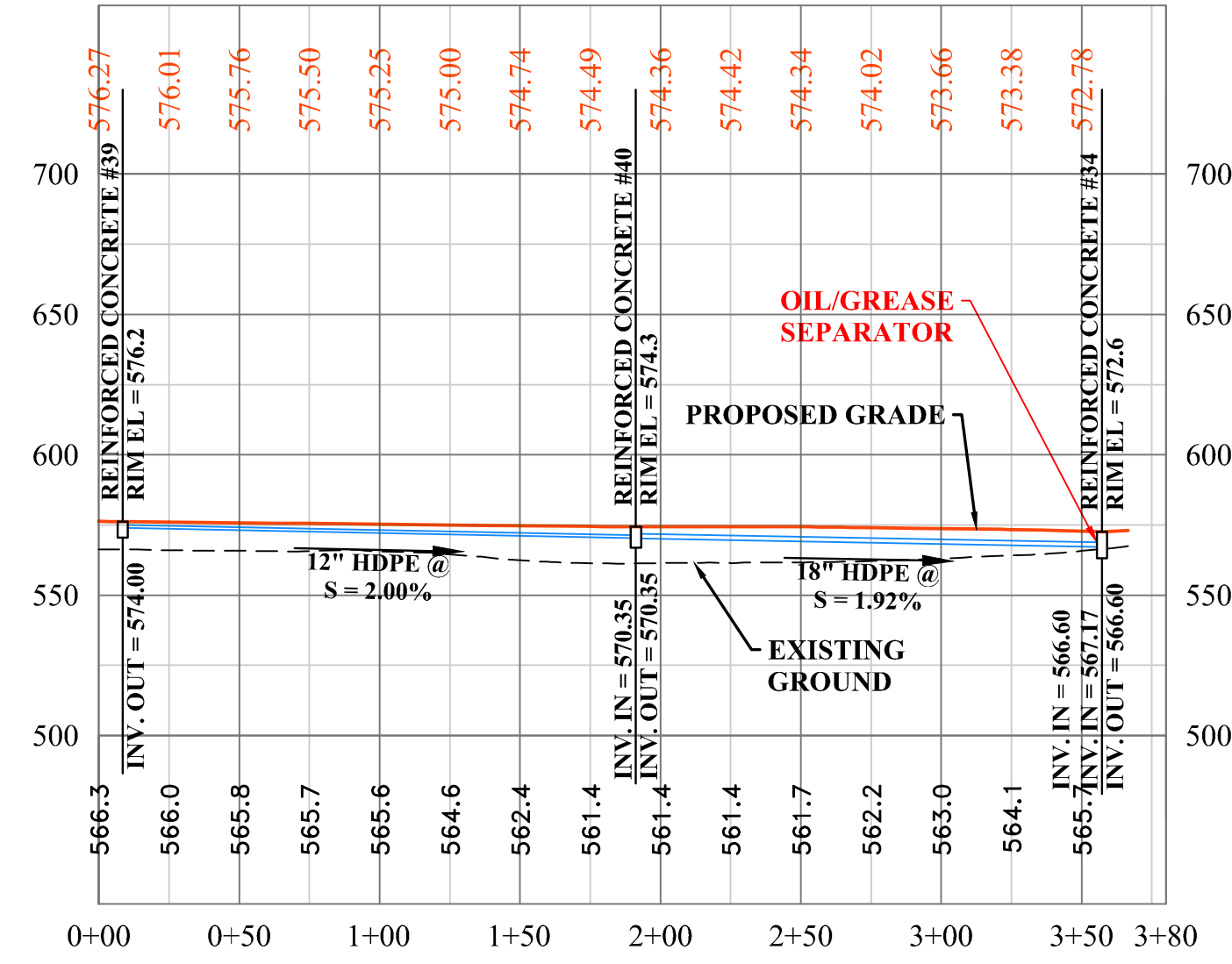
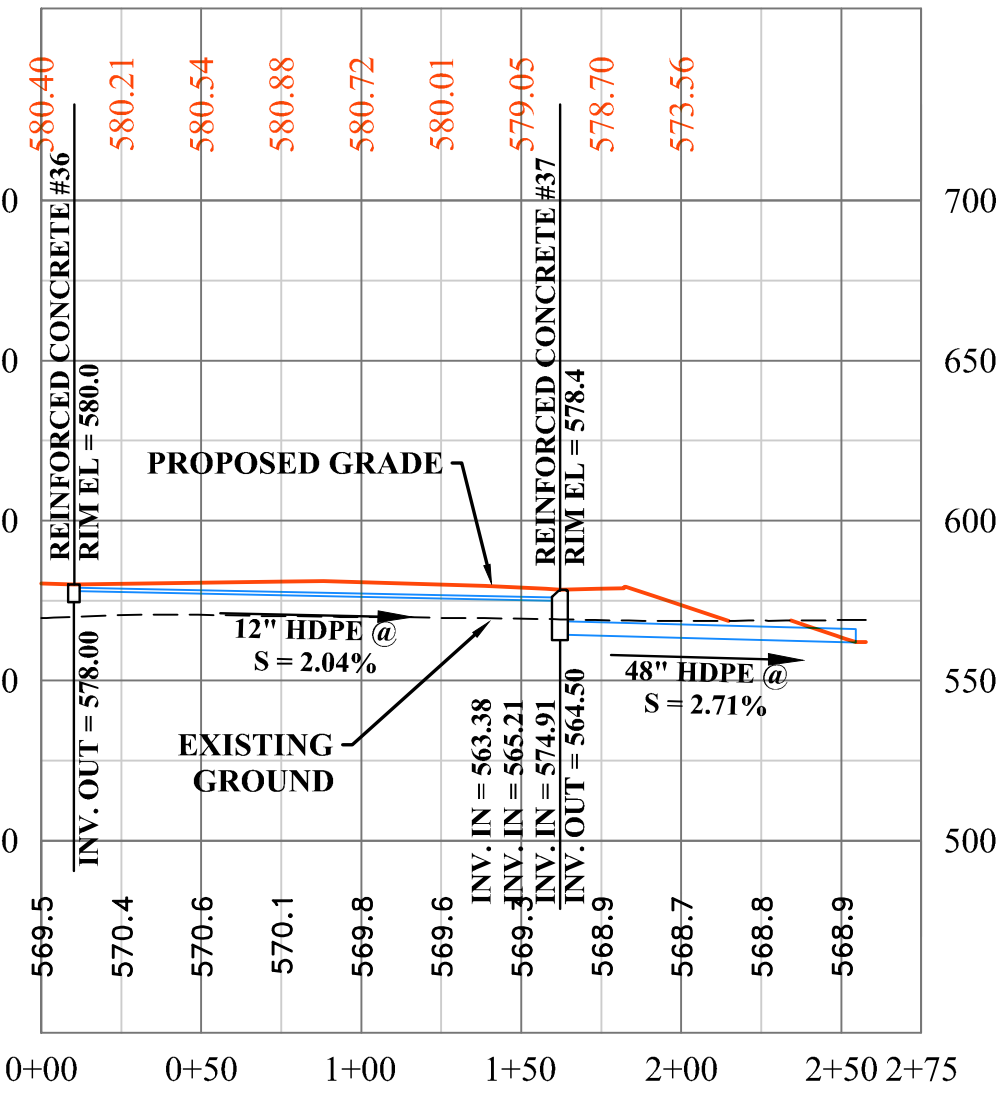
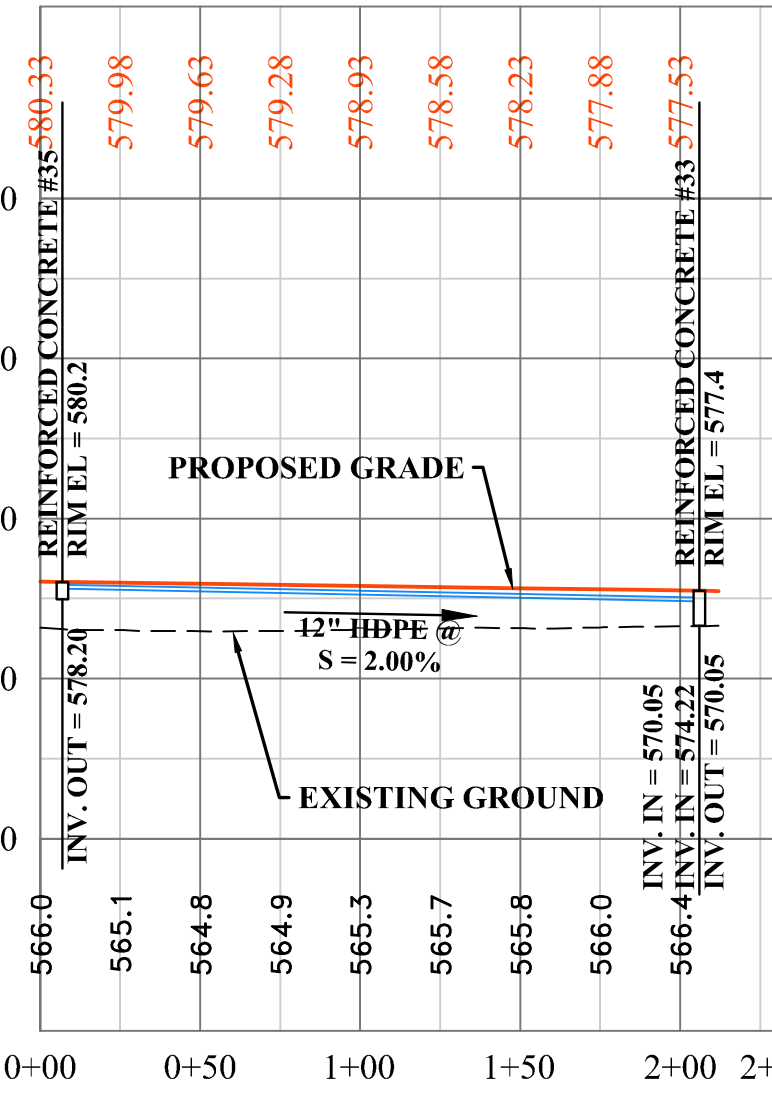
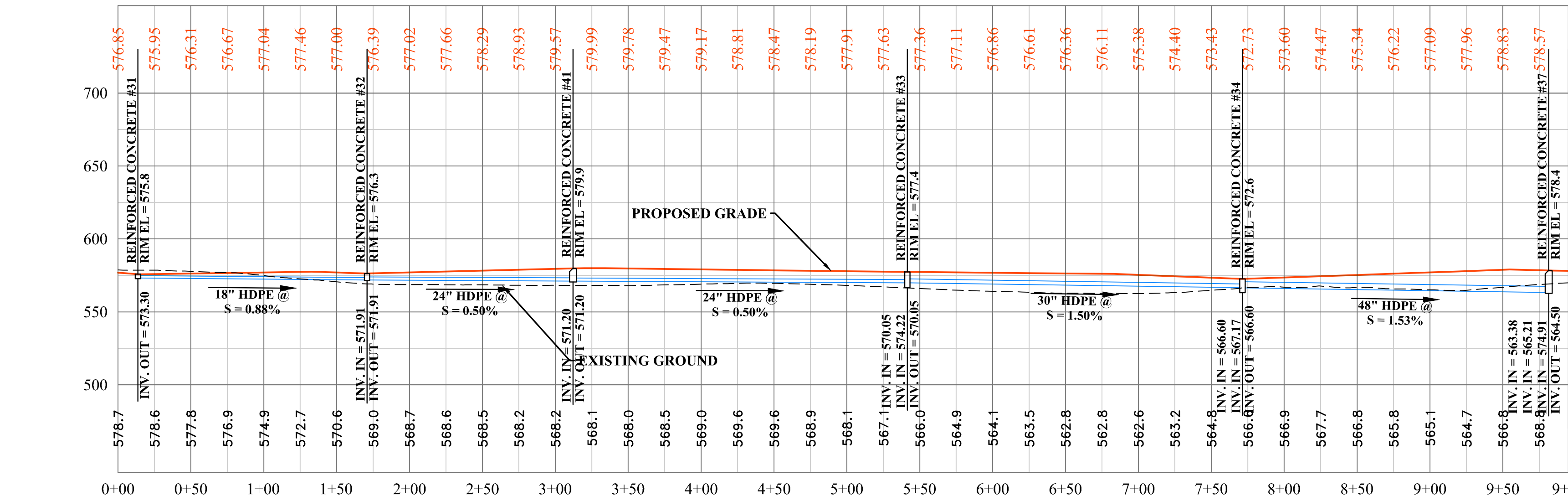
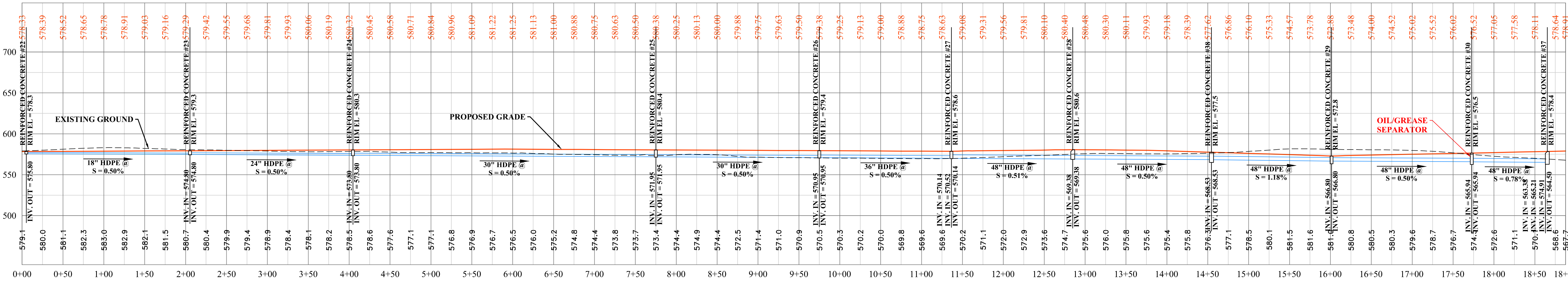


## CLEAN WATER SYSTEM

## STORMWATER PROFILES

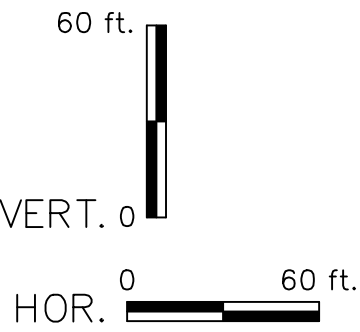






NOTE:  
DI # 29, 30, 33, 34, 35, 36, 38, 39, &  
40 SHALL HAVE A 3' SUMP IN  
THE BOTTOM TO TRAP  
SEDIMENT.

DIRTY WATER SYSTEM  
STORMWATER PROFILES



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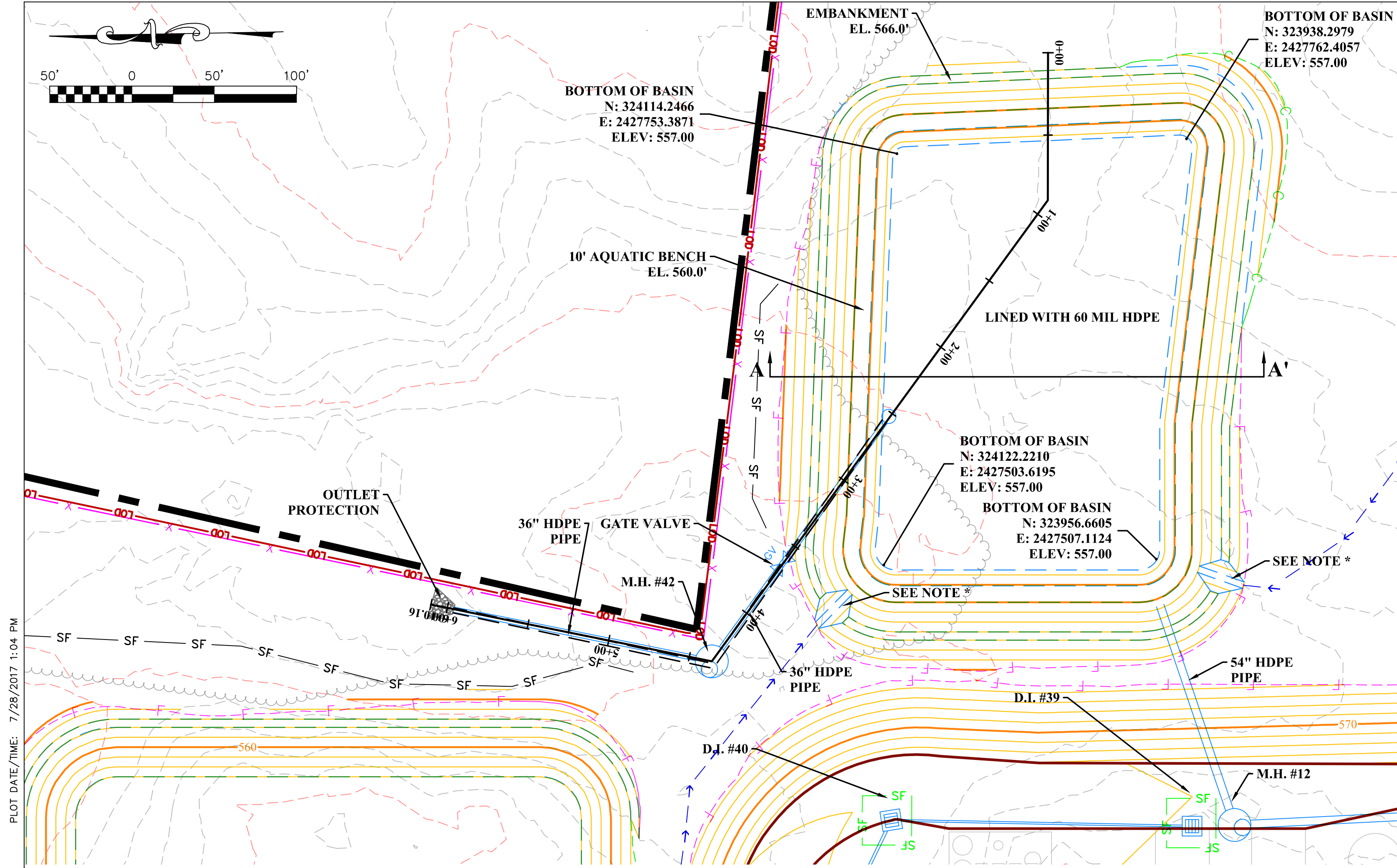
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
STORMWATER PROFILES

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19



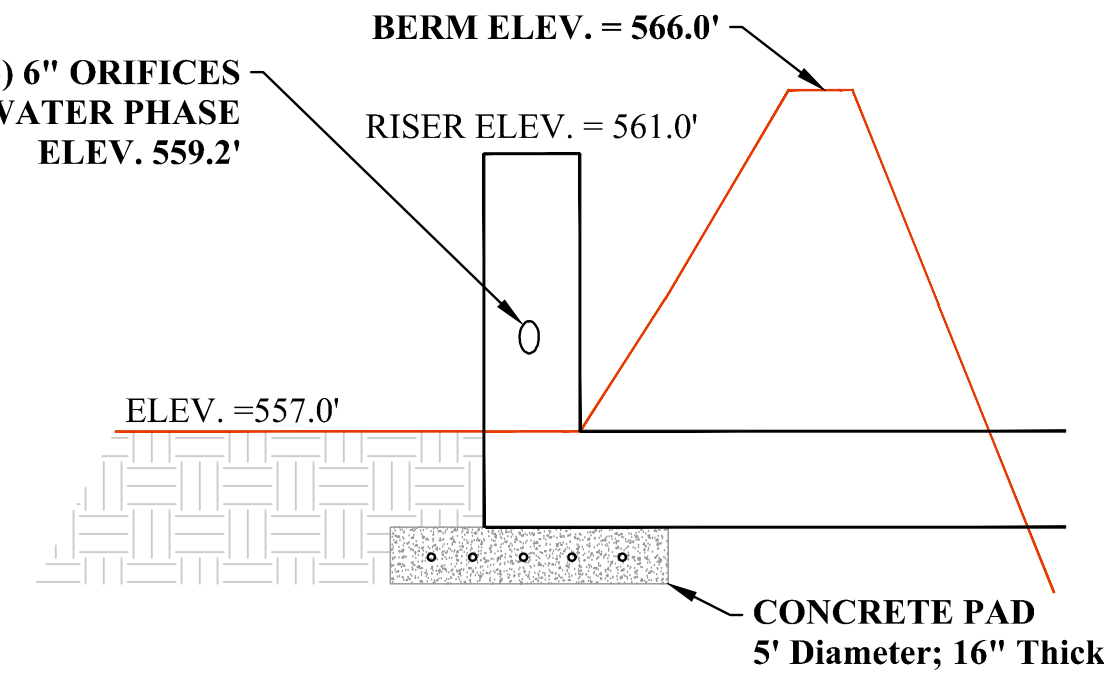
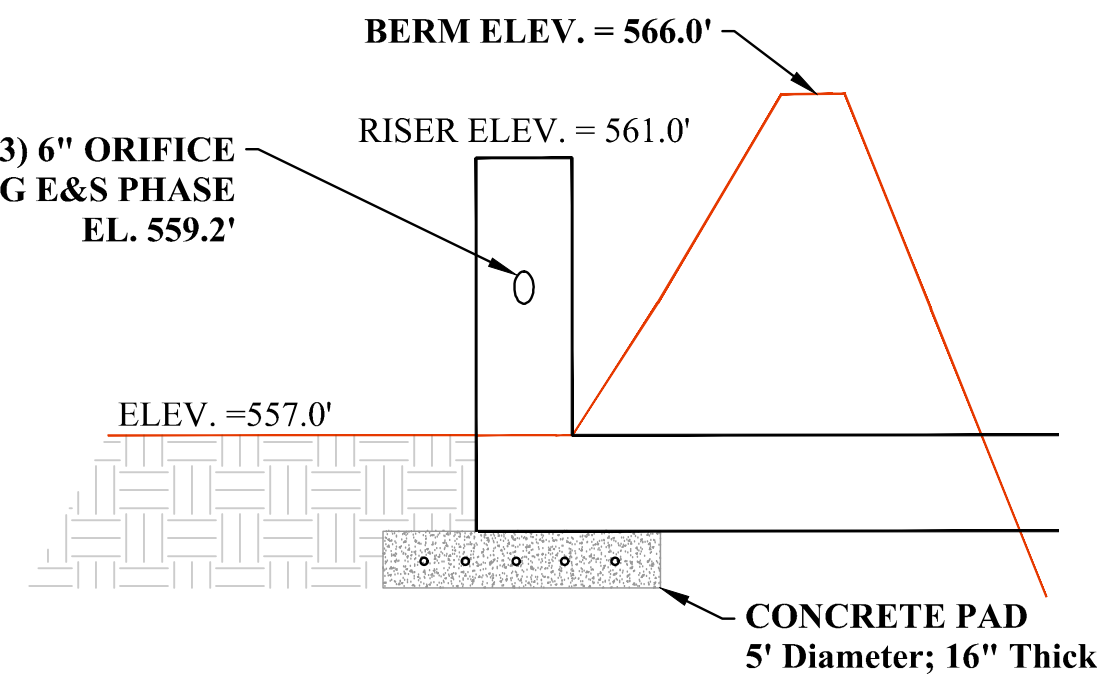




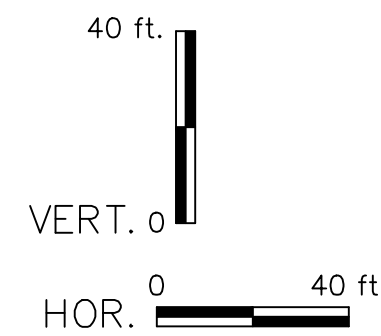
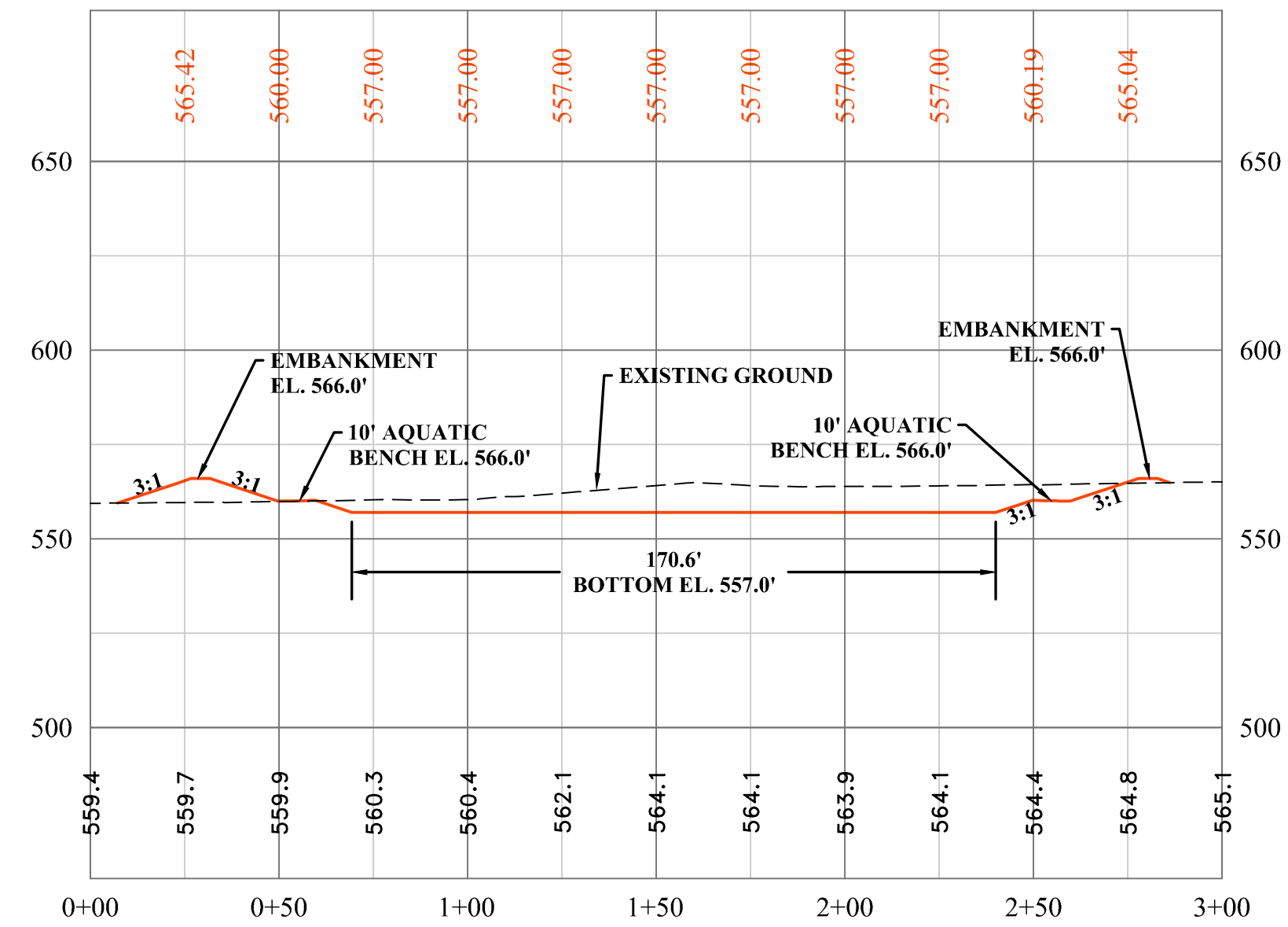
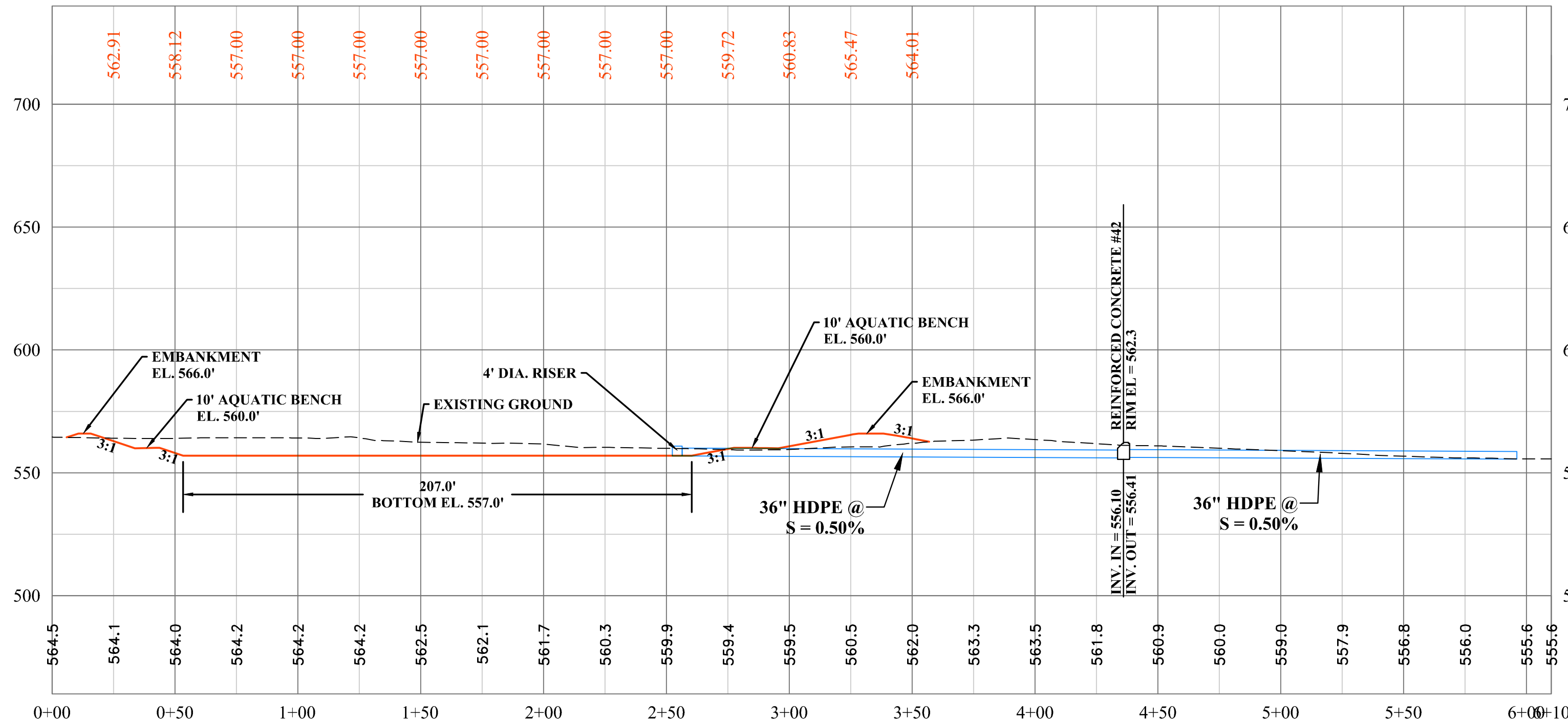


**PROPOSED SEDIMENT BASIN #1**

DRAINAGE AREA = 48.9 AC.  
REQUIRED VOLUME = 176,040 C.F.  
WET STORAGE = 108,479 C.F. -EL. 559.20'  
DRY STORAGE = 5,202 C.F. -EL. 561.00'  
TOTAL STORAGE = 216,958 C.F.  
25 yr STORM EL. = EL 563.77'  
ORIFICE SIZE = 6"



**\*NOTE: DITCH KEYWAYS TO BE REMOVED WHEN SEDIMENT BASIN IS CONVERTED TO STORMWATER BASIN.**



LAYOUT TAB: SEDIMENT BASIN #1  
CAD FILE: R:\030-3203-SITE ENGINEERING-ROCKWELL INTERNATIONAL\Drawing\ANSON SITE PLAN APP\DRAWINGS\recovery.dwg  
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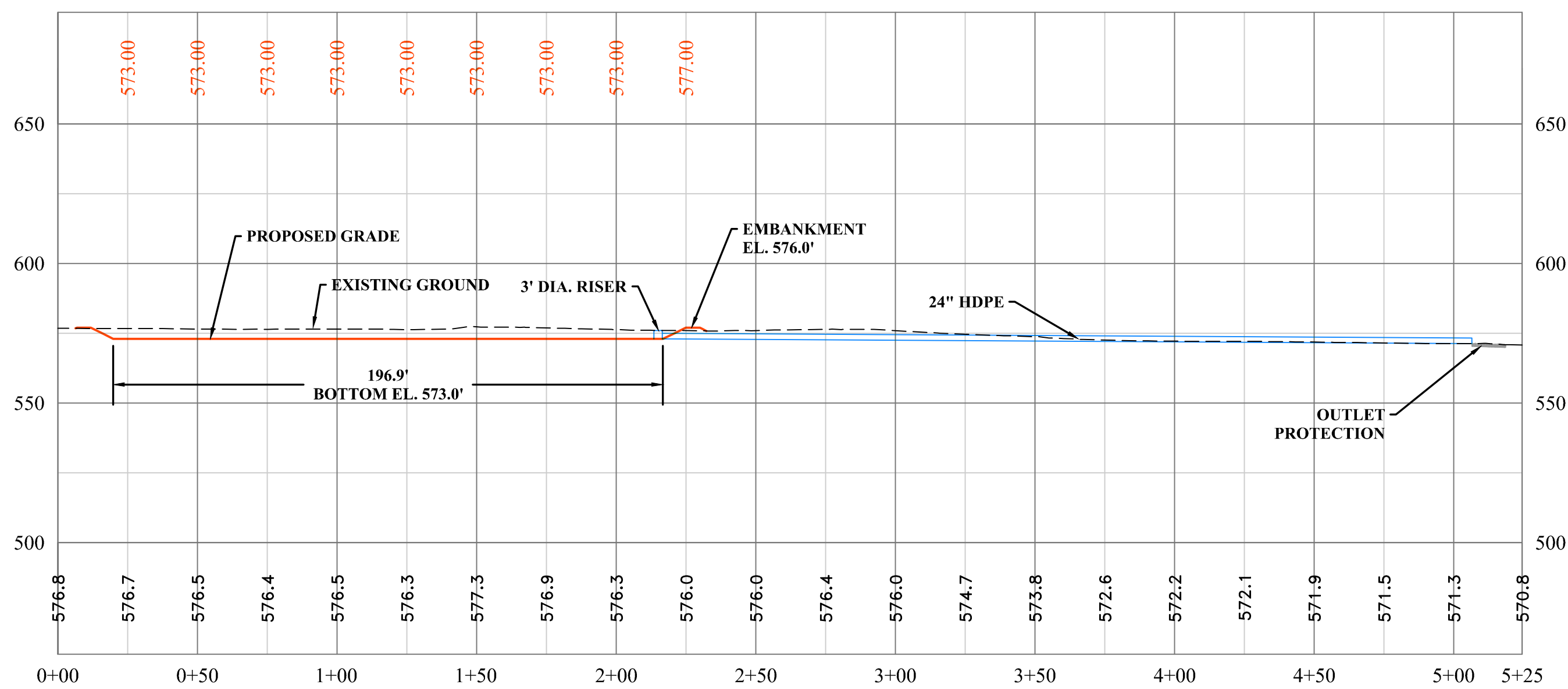
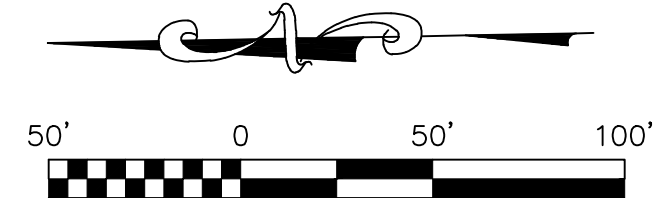
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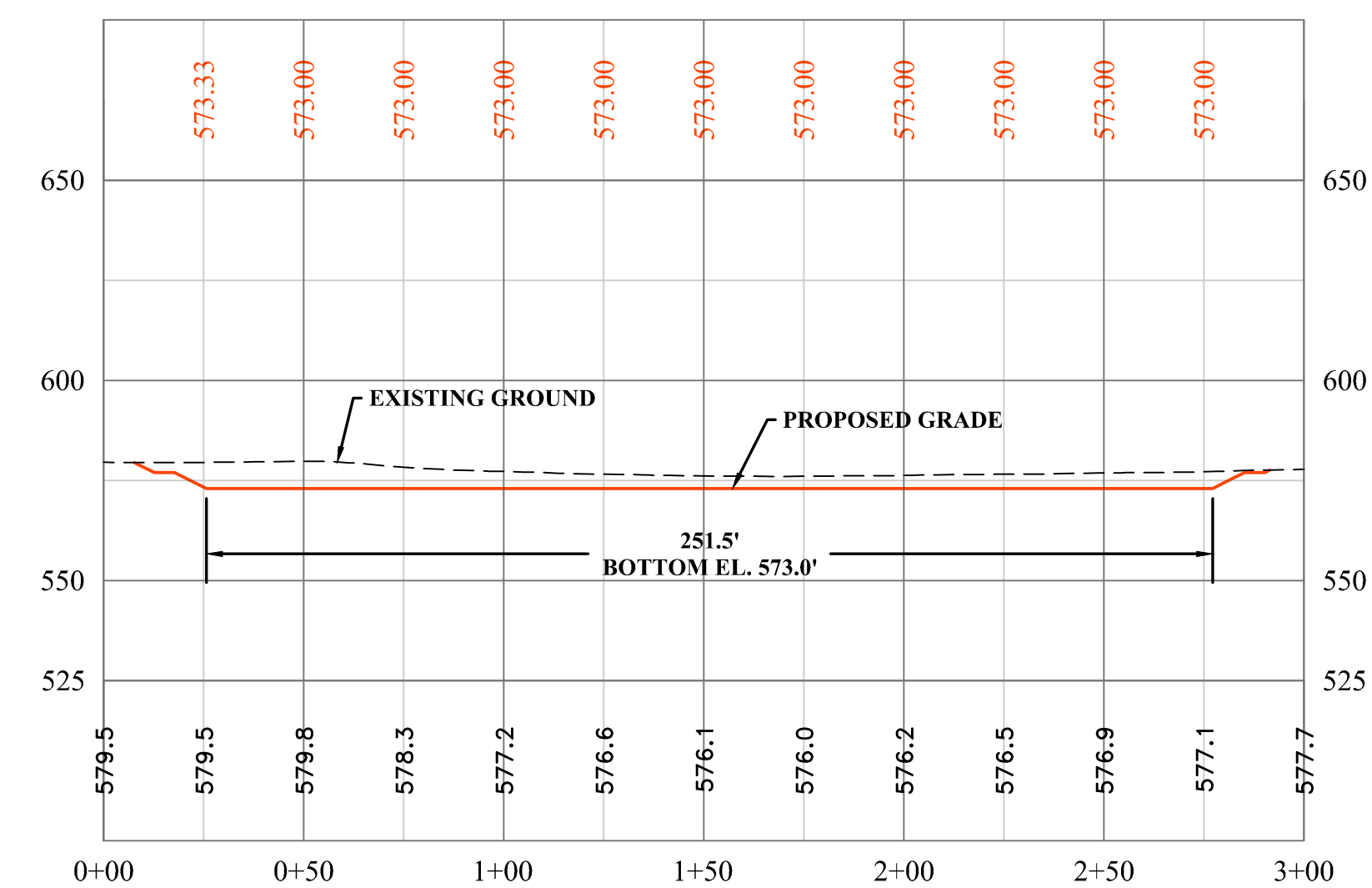
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EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
SEDIMENT BASIN #1

SHEET No.	21
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**DRAINAGE AREA = 16.2 AC.**  
**REQUIRED VOLUME = 58,320 C.F.**  
**WET STORAGE = 71,461 C.F. -EL. 574.50'**  
**DRY STORAGE = 71,461 C.F. -EL. 576.00'**  
**TOTAL STORAGE = 142,922 C.F.**  
**25 yr STORM EL. = EL 576.3'**  
**ORIFICE SIZE = 6"**



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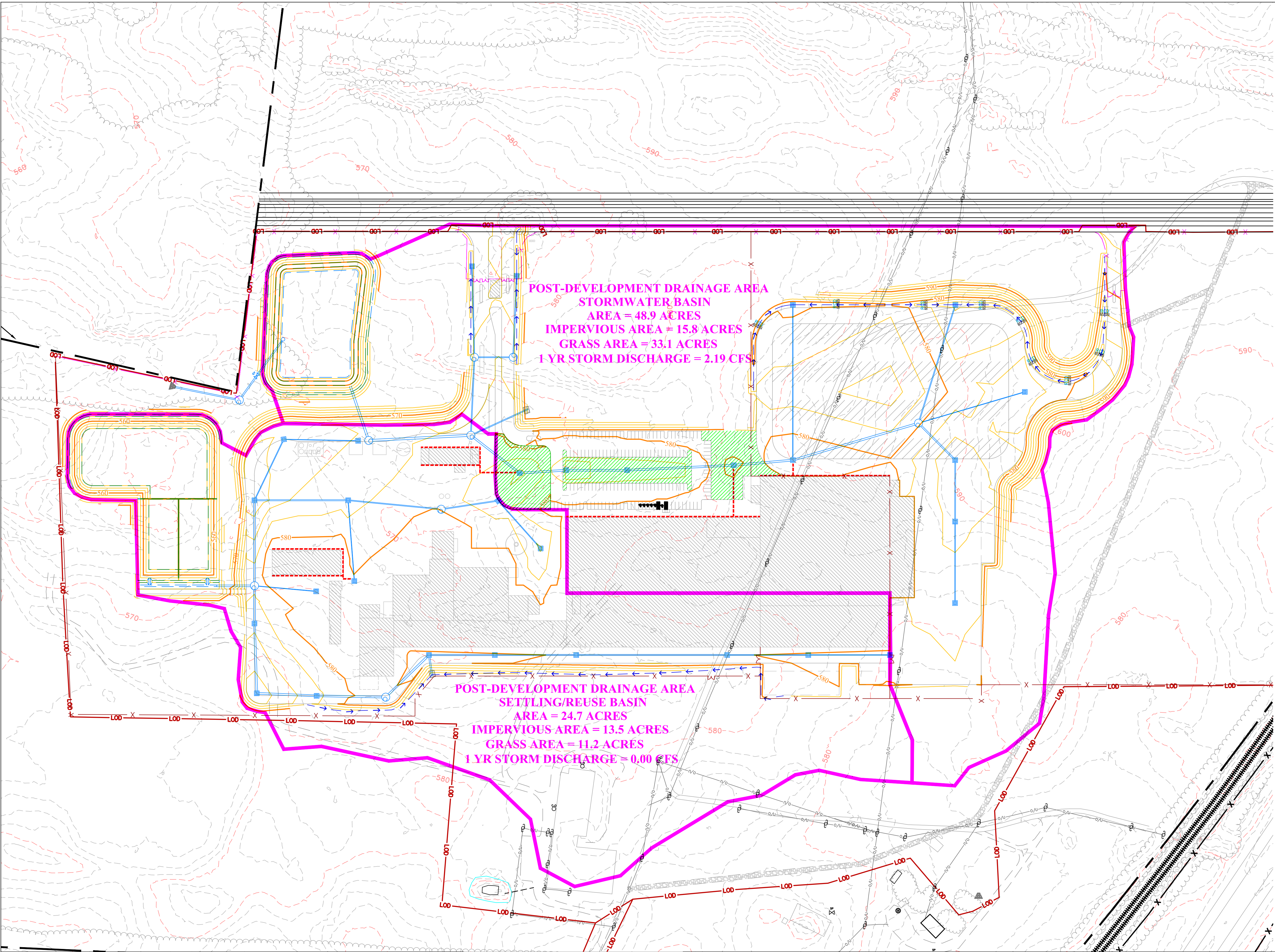
ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
SEDIMENT BASIN #2

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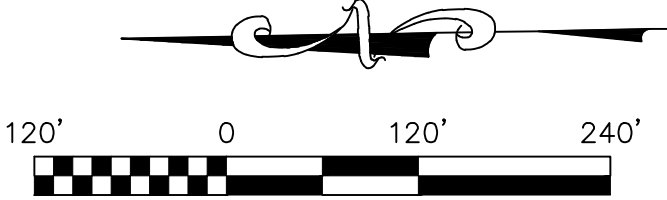


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PLAN LEGEND

- PROPERTY LINE
- PROPOSED CONTOURS MAJOR / MINOR
- EXISTING CONTOURS MAJOR / MINOR
- DROP INLET
- MANHOLE
- HDPE PIPE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED DITCH
- BIORETENTION AREA
- PROPOSED ROCK CHECK DAM
- PROPOSED ROOF DRAIN COLLECTION PIPES (TO BE PART OF THE BUILDING DESIGN)



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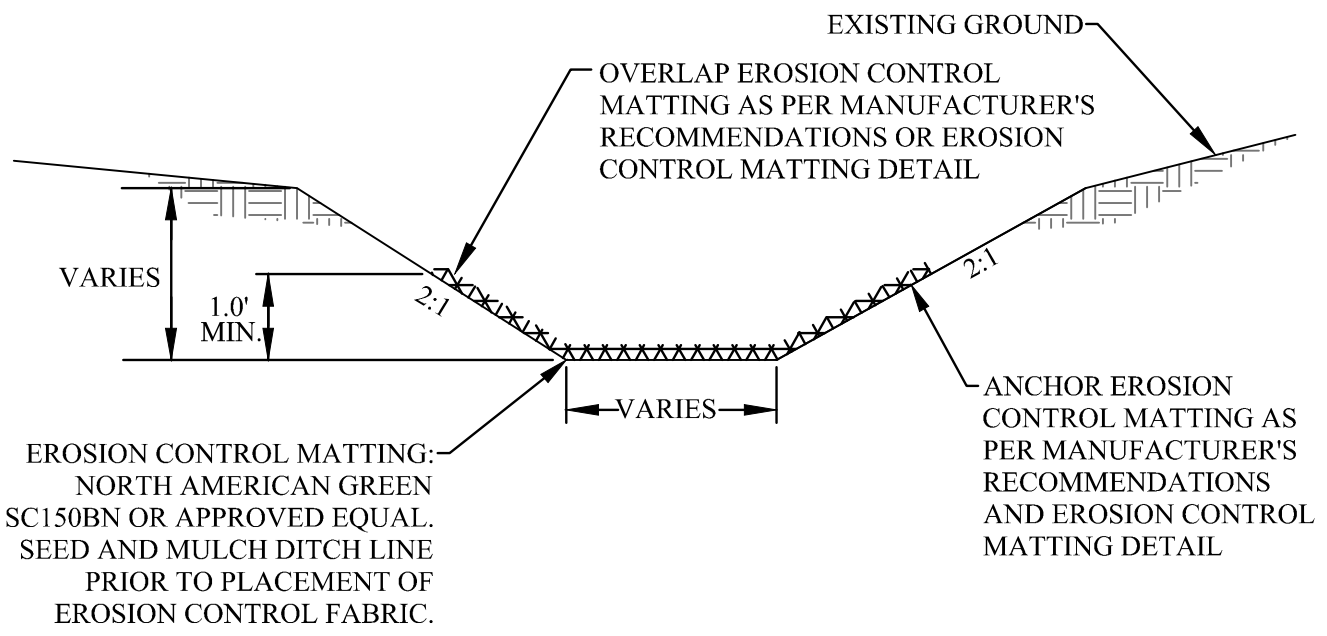
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
WATERSHED MAP

SHEET No.
23



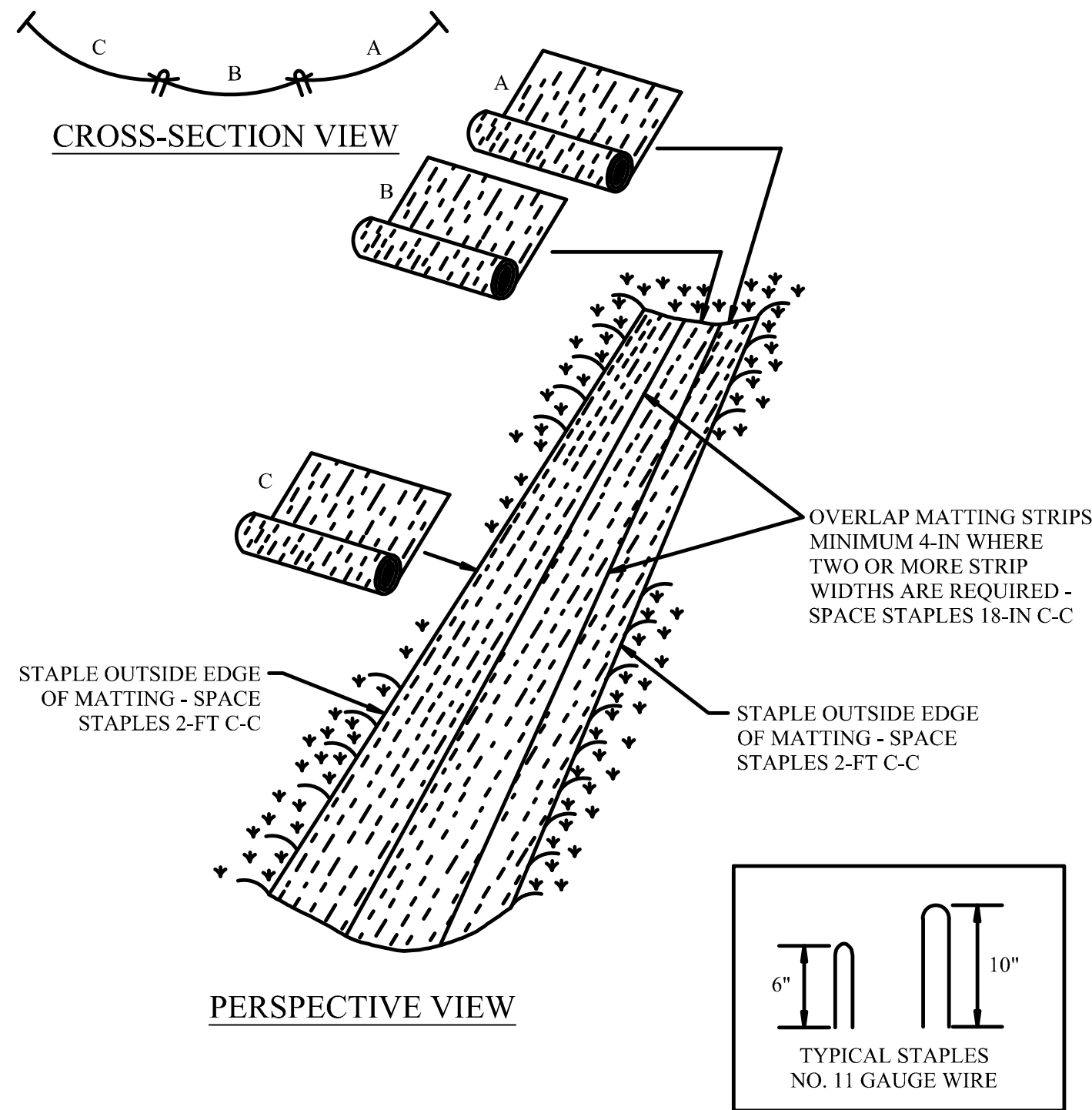
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### VEGETATED (EROSION CONTROL MATTING) DITCH

NOT TO SCALE

- NOTES:
1. INSTALL WHERE DITCHLINE SLOPES ARE LESS THAN 8%
  2. REFER TO E&S AND GRADING PLAN SHEETS FOR SIZES.
  3. DETAIL TO BE USED FOR DIVERSION, ROADSIDE AND CUTOFF SWALES/DITCHES.

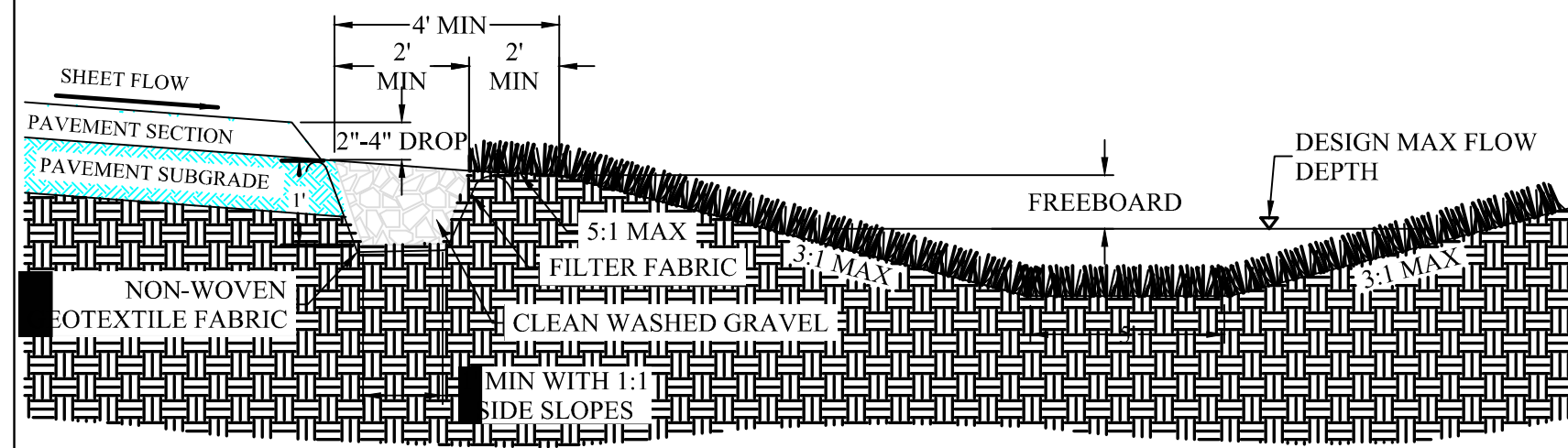


#### CONSTRUCTION NOTES:

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6-IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4-IN DOWN SLOPE FROM THE TRENCH. SPACE THE STAPLES 6-IN CENTER TO CENTER (C-C).
2. STAPLE THE 4-IN OVERLAP IN THE CHANNEL CENTER USING A STAPLE SPACING OF 18-IN C-C.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE SPACED 24-IN C-C WITH 4 ROWS FOR EACH STRIP - 2 OUTER ROWS and 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4-IN MINIMUM, USING SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6-IN C-C IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHALL BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES SPACED 6-IN C-C IN A STAGGERED PATTERN ON EITHER SIDE.
7. IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

### EROSION CONTROL MATTING DETAIL (CHANNEL)

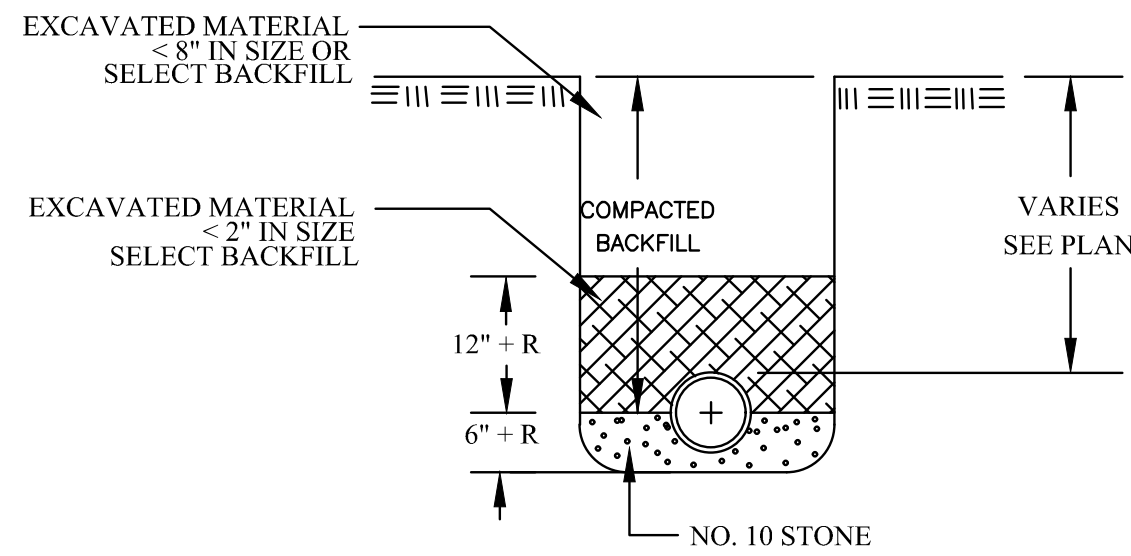
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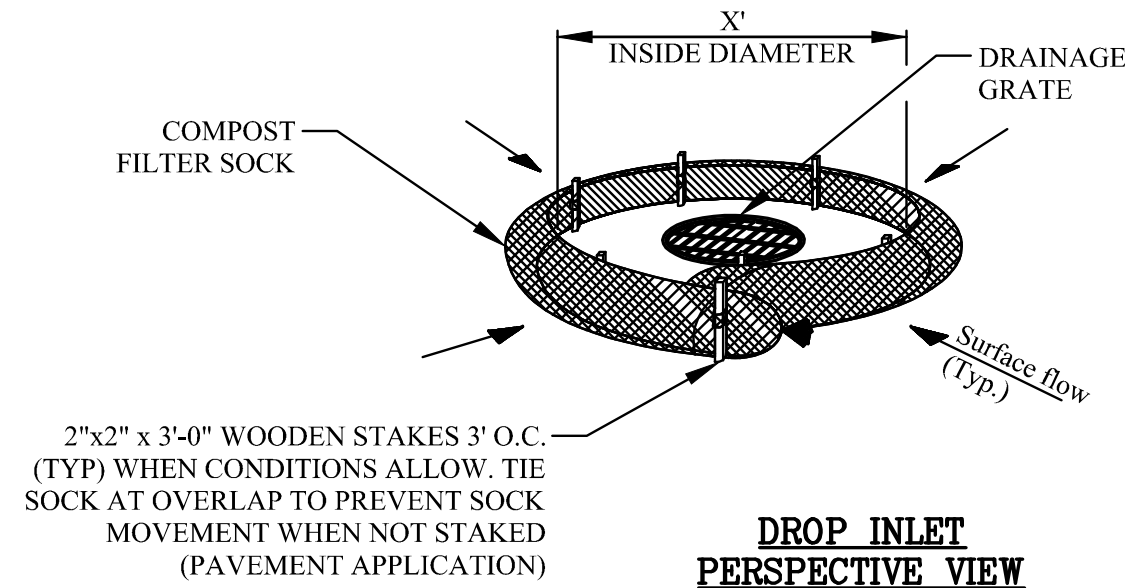
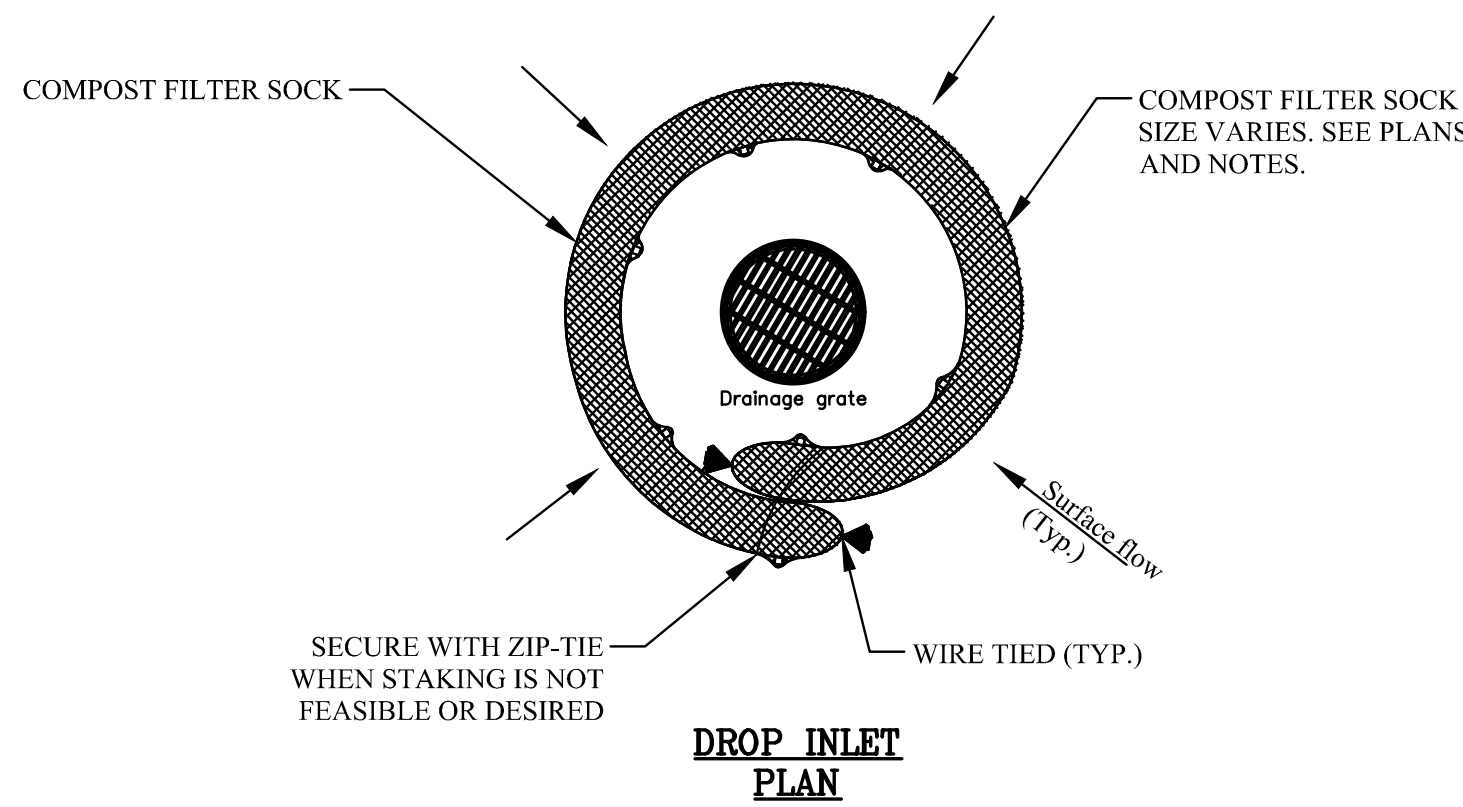
### GRASS SWALE

NOT TO SCALE

- NOTES:
1. THE LONGITUDINAL SLOPE OF THE CHANNEL SHOULD BE NO GREATER THAN 4%.

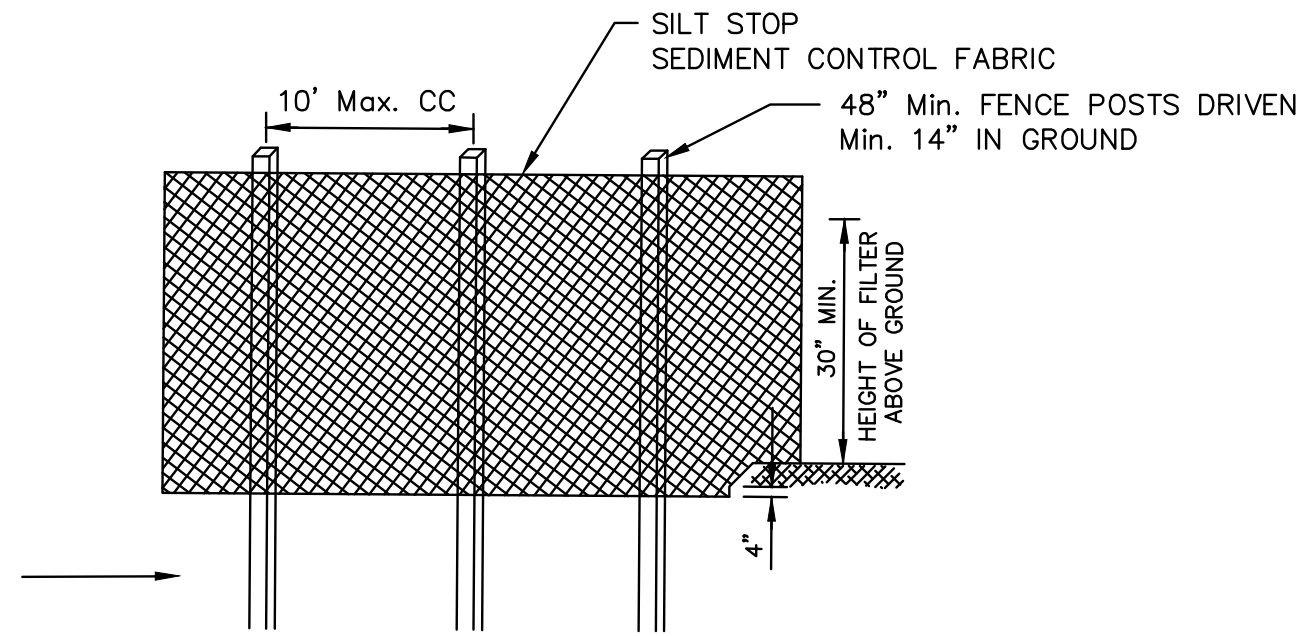


### BEDDING FOR STORM SEWER PIPE

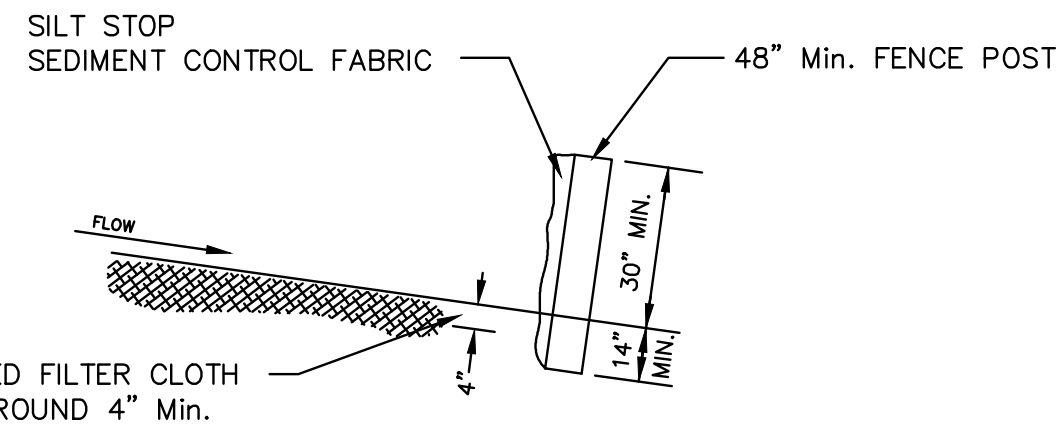


### COMPOST FILTER SOCK INLET PROTECTION

NTS



#### PERSPECTIVE VIEW



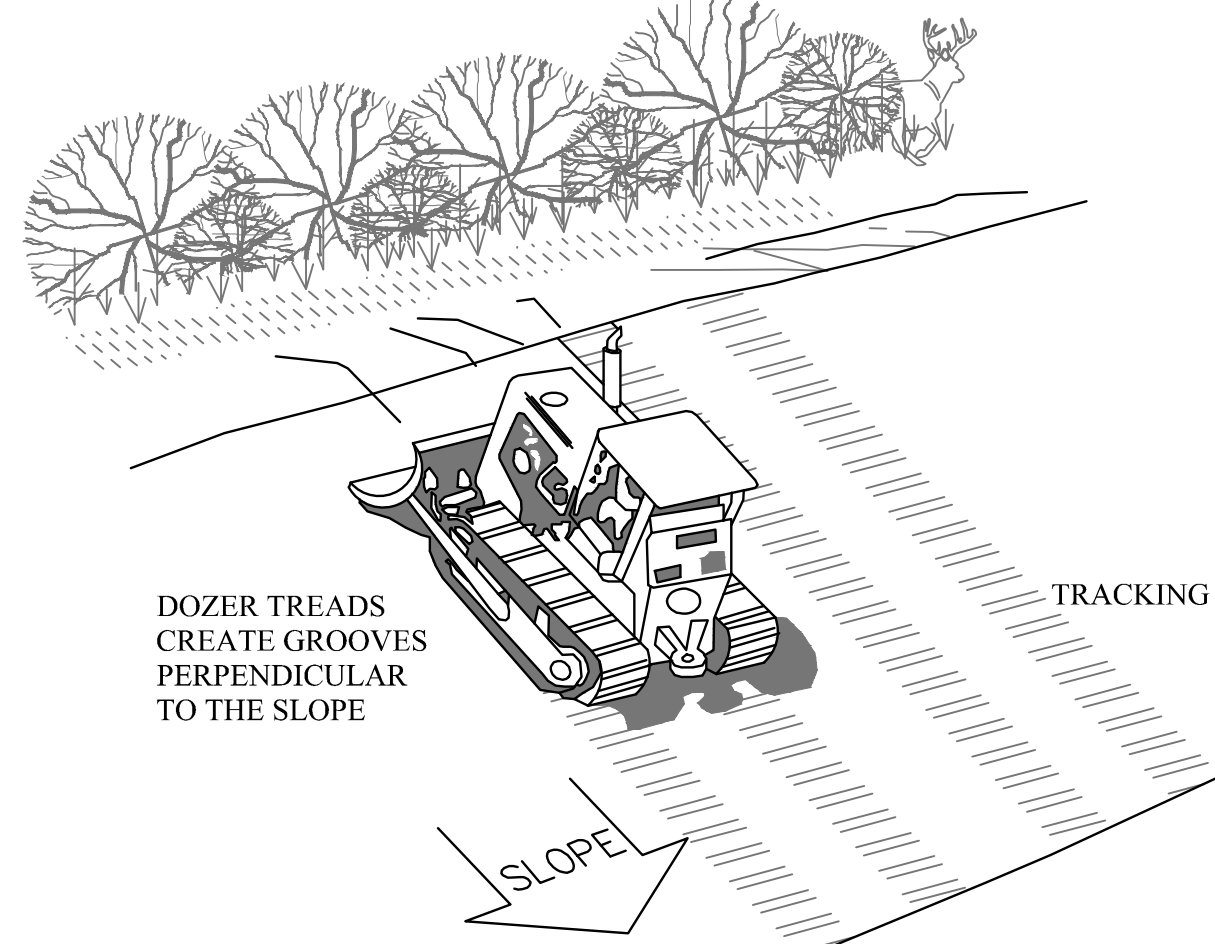
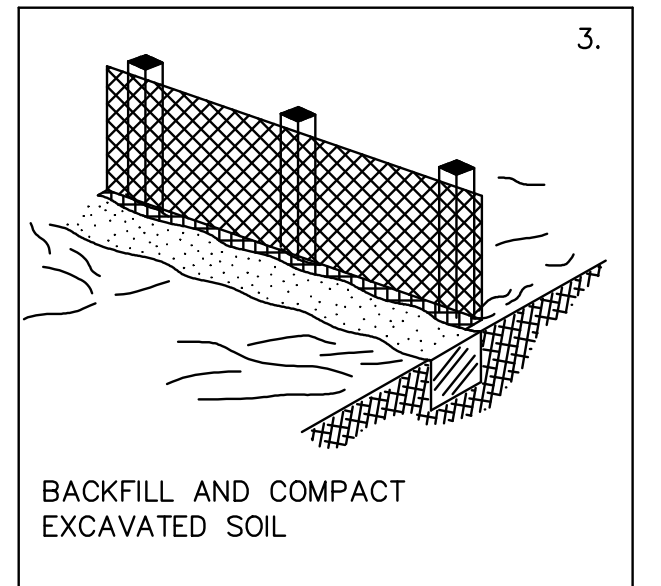
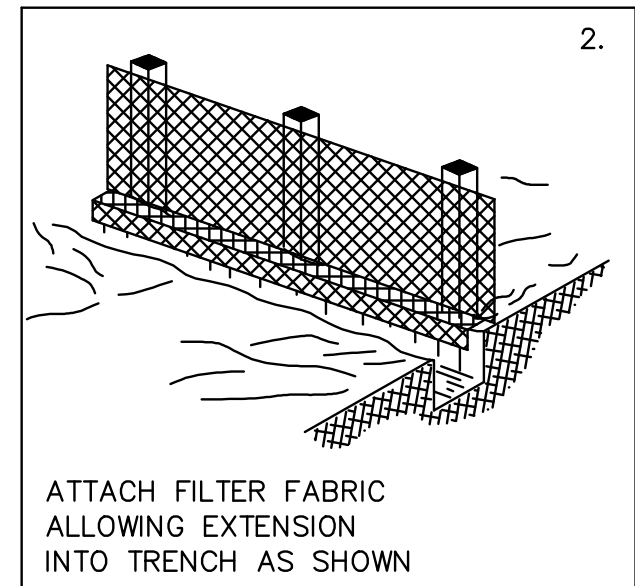
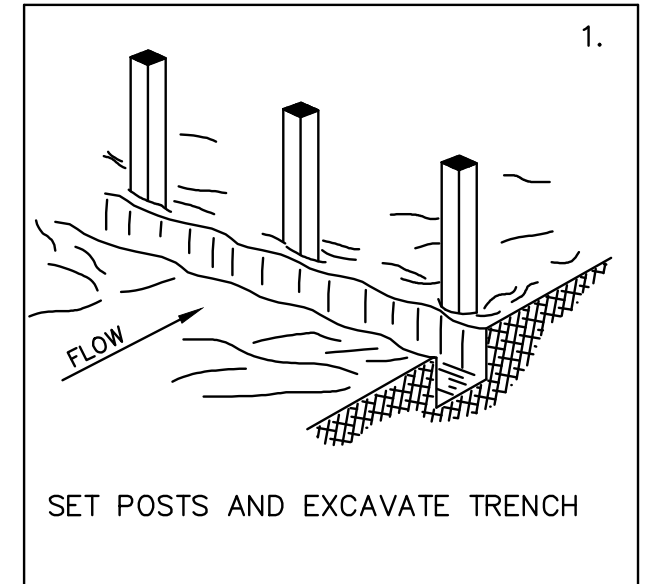
#### SECTION

NOTE: SET SILT FENCE PARALLEL TO THE CONTOURS AT ALL POINTS ALONG ITS LENGTH

### SILT FENCE DETAIL

NOT TO SCALE

### BUILDING A SILT FENCE A STEP BY STEP PROCEDURE



### TRACKING A CONSTRUCTED SLOPE

NOT TO SCALE

#### NOTES:

1. ANCHORING STAKES SHALL BE SIZED, SPACED, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE FILTER SOCK. STAKE SPACING SHALL BE MAXIMUM OF THREE FEET.
2. OVERLAP ENDS OF SOCK PER MANUFACTURERS RECOMMENDATIONS. (1' MIN. 3' MAX.)
3. USE 8" TO 12" DIA. SOCK ON CURBSIDE IN TRAFFIC AREAS.
4. USE 12" - 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

### For Info on NPDES Storm Water Permit

To comment on Sediment Control Plan:  
**Call: 800-654-5227**  
or  
[plan@wvdep.org](mailto:plan@wvdep.org)  
DEP 601 57th Street, SE, Charleston WV 25304  
Application date: xx/xx/xx

**ROXUL USA INC.**  
**RAN5 PROJECT**  
(+48) 683850587

#### NOTES:

1. SIGN SHALL BE INSTALL AT THE ENTRANCE TO THE SITE.
2. SIGN SHALL BE 24-IN x 24-IN MINIMUM.
3. SIGN LETTERING SHALL BE 1.6-IN AND 0.8-IN.
4. HIGH CONTRAST COLORS SHALL BE USED.
5. WHITE BACKGROUND WITH BLACK BLOCK LETTERS.
6. SIGN SHALL BE INSTALLED 36-IN FROM GROUND.

### PUBLIC NOTICE SIGN

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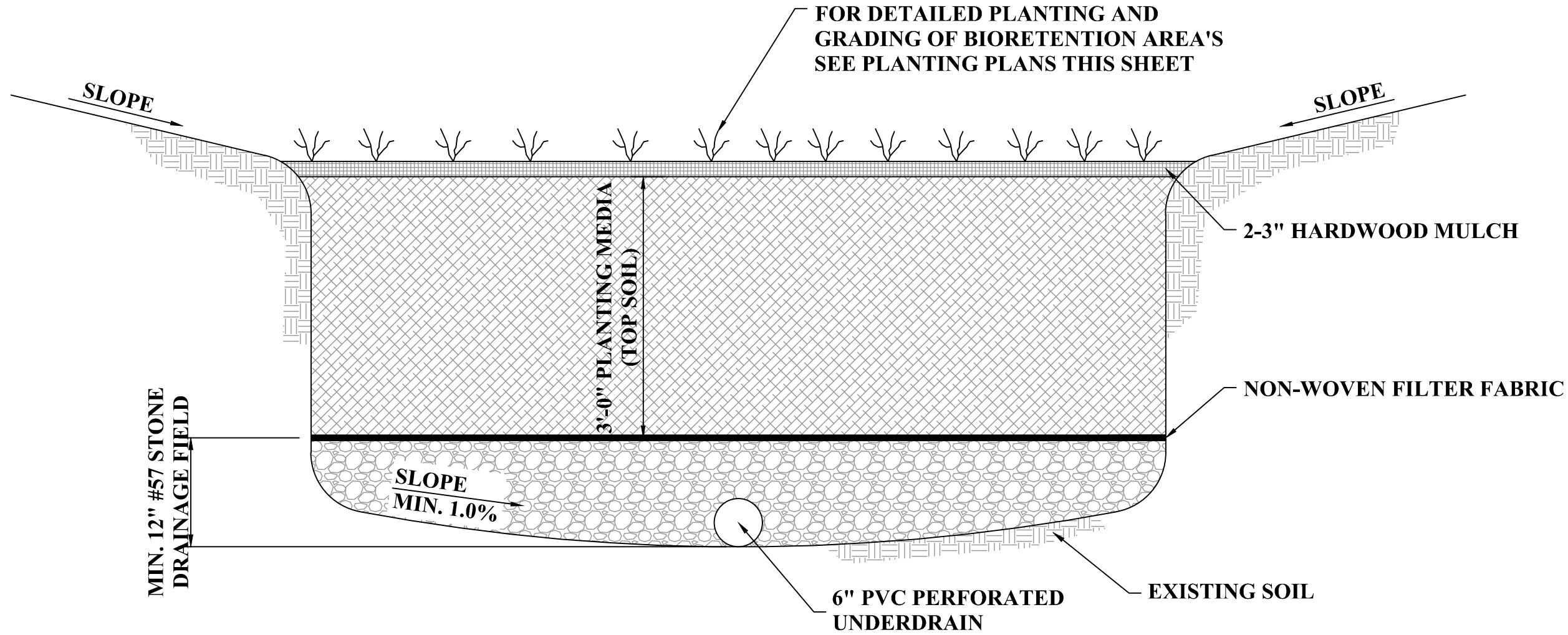
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**RAN 5 PROJECT**  
**JEFFERSON COUNTY, WEST VIRGINIA**  
**DETAILS**

SHEET No.

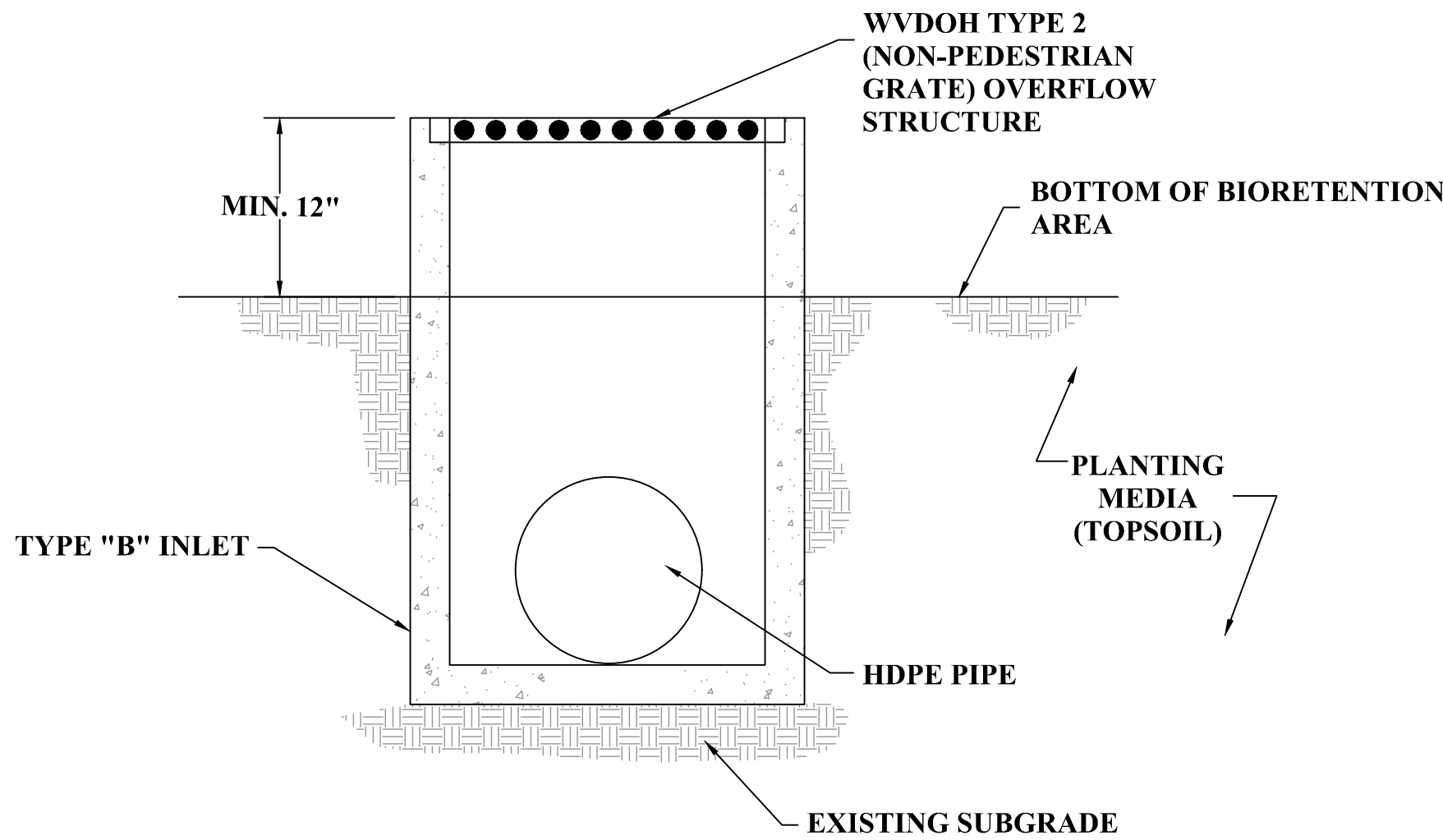
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PRIMARY BIORETENTION AREA TYPICAL SECTION  
NOT TO SCALE



BIORETENTION OUTLET AND DRAINAGE  
COLLECTION STRUCTURE CROSS SECTION  
NOT TO SCALE

LEGEND			
	River Betula Nigra / Birch (5 GAL Pot)		Ink Berry / Ilex Glabra (3 GAL Pot)
	Crphalanthus Occidentrlis / Button Bush (3 GAL Pot)		Mixed Grasses (Seed Mix)

## SPECIFICATIONS FOR BIO-RETENTION AREAS

### SOILS

The soil (filter media) for the bio-retention area shall have a composition of 70-85% sand, 5% compost and 10-25% Top soil. The soil classification shall be either loamy sand, sandy loam, or loam under the USDA classification system. The soil shall be uniform and shall be free of deleterious material such as rocks, stumps, roots, etc. The soil shall be also free of any material that will retard and/or inhibit plant growth. The soil shall be tested and meet the following criteria.

pH range	5.2 - 7.0
Organic Matter	1.5 - 4% by weight
Magnesium	35 lb/ac
Phosphorus (phosphate - P205)	75 lb/ac
Potassium (potasin K20)	85 lb/ac
Soluble salts	not to exceed 50 ppm

All bio-retention areas shall have a minimum of one test. A textural analysis is required for each area on which the soil is obtained. Should the pH fall outside the acceptable range, it may be raised with the addition of lime or lowered with the addition of iron sulfate plus sulfur as required.

Compaction of the base of the bio-retention area and the soil fill shall be minimized at all times. When possible, the contractor shall use track hoes to remove original soil. If a loader is used, light weight, wide track equipment shall be employed in order to minimize compaction of the insitu soil. When back filling the facility, place soil in 12"-18" lifts, again, use light weight, wide track equipment within the limits of the facility in order to place the soil. Soil fill shall be lightly tamped with a back hoe or dozer bucket when placed.

### MULCH

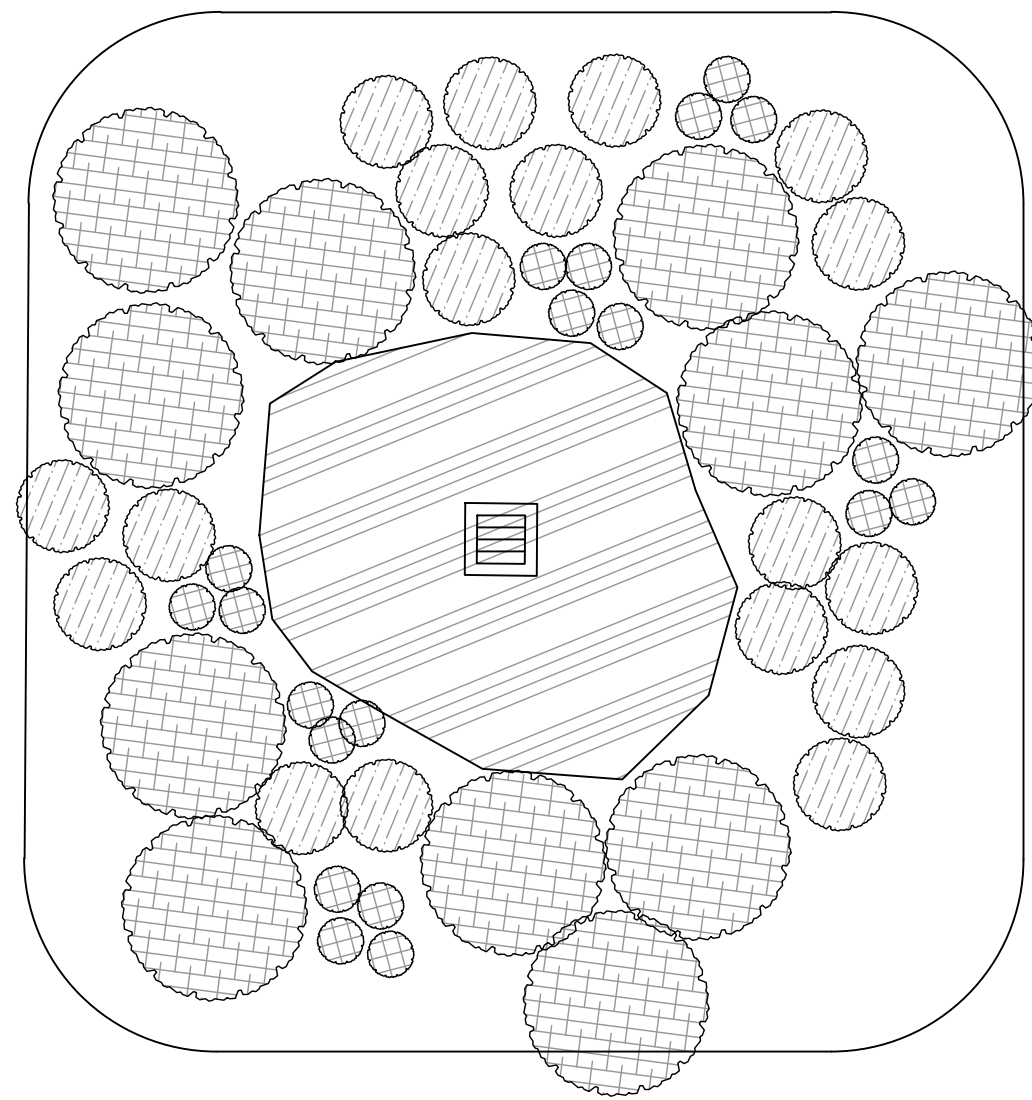
A mulch layer shall be provided on top of the planting soil. This layer of mulch shall be 3" thick and shall be comprised of hardwood mulch. Pine mulch or wood chips are not acceptable due to the fact that they will float during inundation. All mulch must be aged at least six (6) months in order to be acceptable for use in a bio-retention area.

### GENERAL

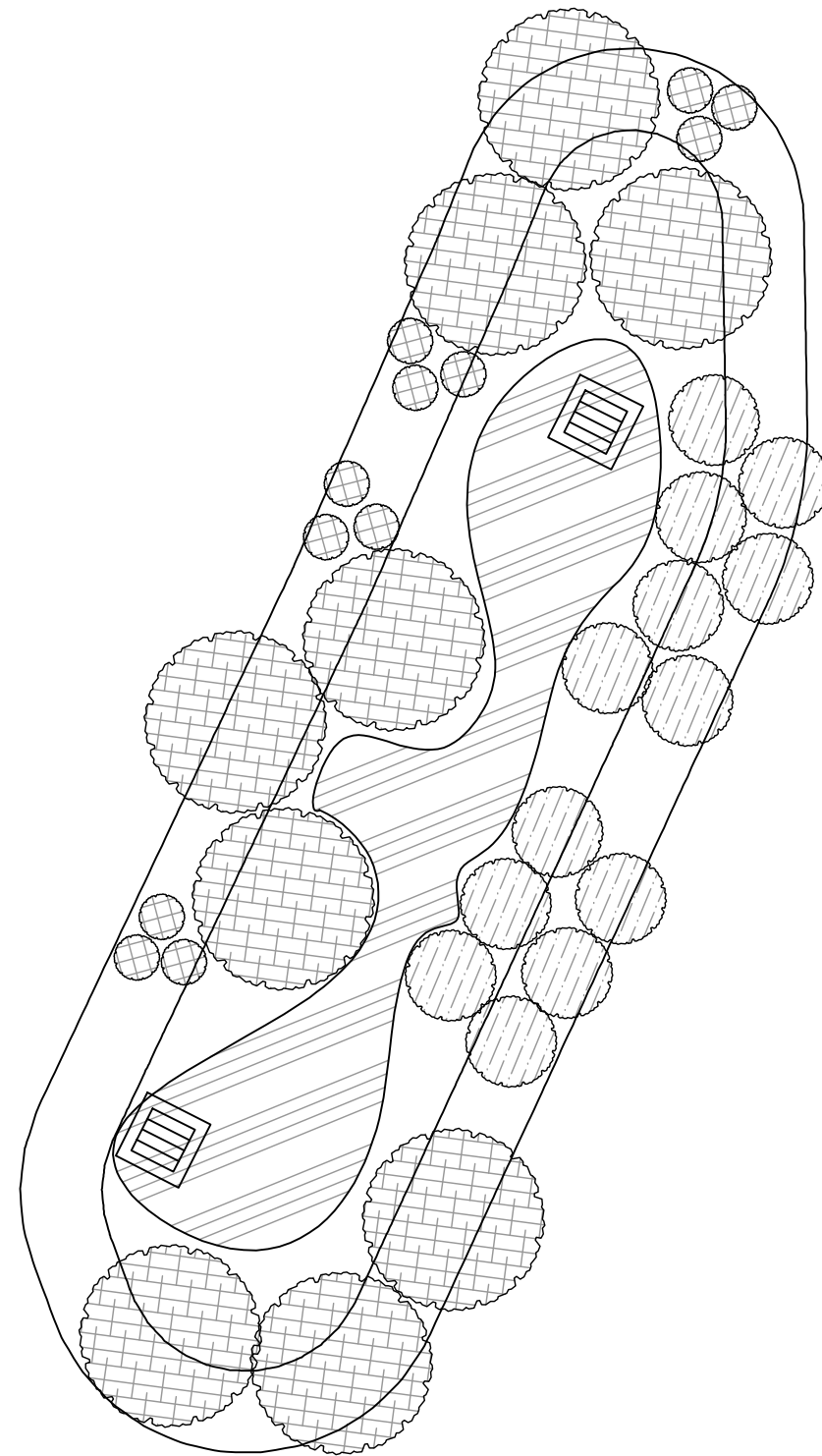
The bio-retention area may not be used as a sediment basin. The bio-retention area shall only be constructed when the area draining to the basin is completely stabilized.

### PLANTING

All trees, shrubs, and grasses shall be of nursery quality stock, symmetrical growth, and be free of insects, pests, and diseases. Any plants that have become diseased or pest ridden shall be replaced by the contractor. Trees, shrubs, and plants shall be placed in accordance with good landscaping practices. Adding fertilizer to the plants defeats the goal of the bio-retention area. Only add fertilizer if wood chips or mulch is used to amend the soil. Rototill used fertilizer at a rate of two (2) pounds per 1,000 square feet. All plant material shall be watered every day for two weeks after installation. The diameter of the planting pit shall be at least 6" larger than the diameter of the planting ball. The root ball shall be installed so 1/8 of the ball is above the final grade surface. Any area that is excavated for planting shall be back filled with the appropriate planting soil as specified above. If necessary, trees, and bushes shall be staked. Trees shall be staked for the first year only. Stakes shall be equally spaced on the outside of the planting ball.



BIORETENTION (OTHER AREAS)  
NOT TO SCALE



BIORETENTION (PARKING AREA)  
NOT TO SCALE

MAINTENANCE SCHEDULE		
ITEM		FREQUENCY
Soil	inspect and repair erosion	once per month
	inspect/repair pest damage	once per month
	remulch disturbed areas	as required
Plantings	water plants	once per day for the first14 days &/or as needed during drought conditions
	replace tree stakes	as needed for the first year only
	remove invasive plants/weeds	as needed
	treatment of diseased vegetation	as required
	remove/replace dead vegetation	twice per year during planting season
	mow berm and grass area outside of impoundment area	min. once per month during growing season
	mow grass inside of bio-retention area	once per year

Seed mix for Bio-Retention Areas		
Common Name	Botanical Name	Percentage by Weight
SWITCH GRASS	PANECUM VIGATUM "BLACK WELL"	60%
BIG BLUESTEM	ANDROPOGON GERADI	20%
LITTLE BLUESTEM	ANDROPOGON SCOPORIUS	10%
BLACK EYED SUSAN	RUBECKIA HIRTA	5%
ANNUAL RYEGRASS	ANNUAL RYEGRASS	5%

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SURVEY BY:	
FIELD BOOK No.:	



PHASE No.	
CONTRACT No.	
PROJECT No.	
101-030-3203	

ROXUL USA INC.  
EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
DETAILS

SHEET No.	
25	

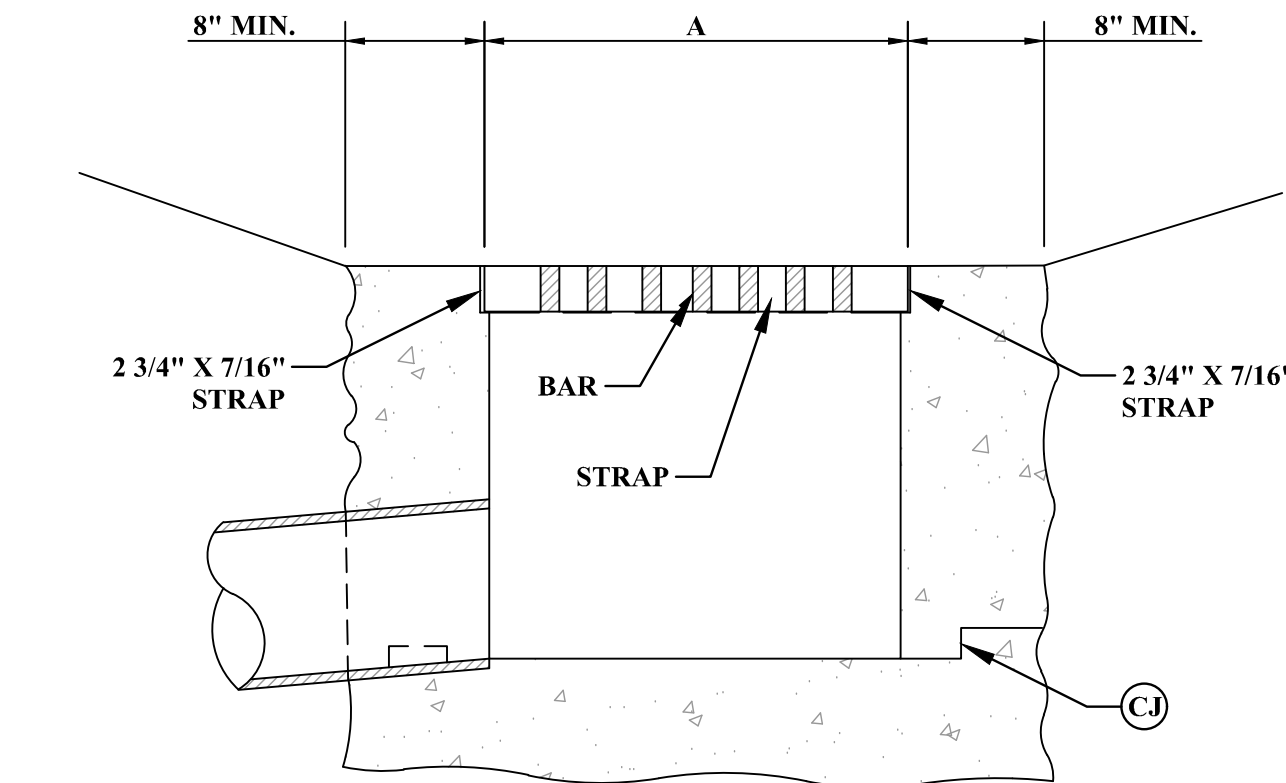




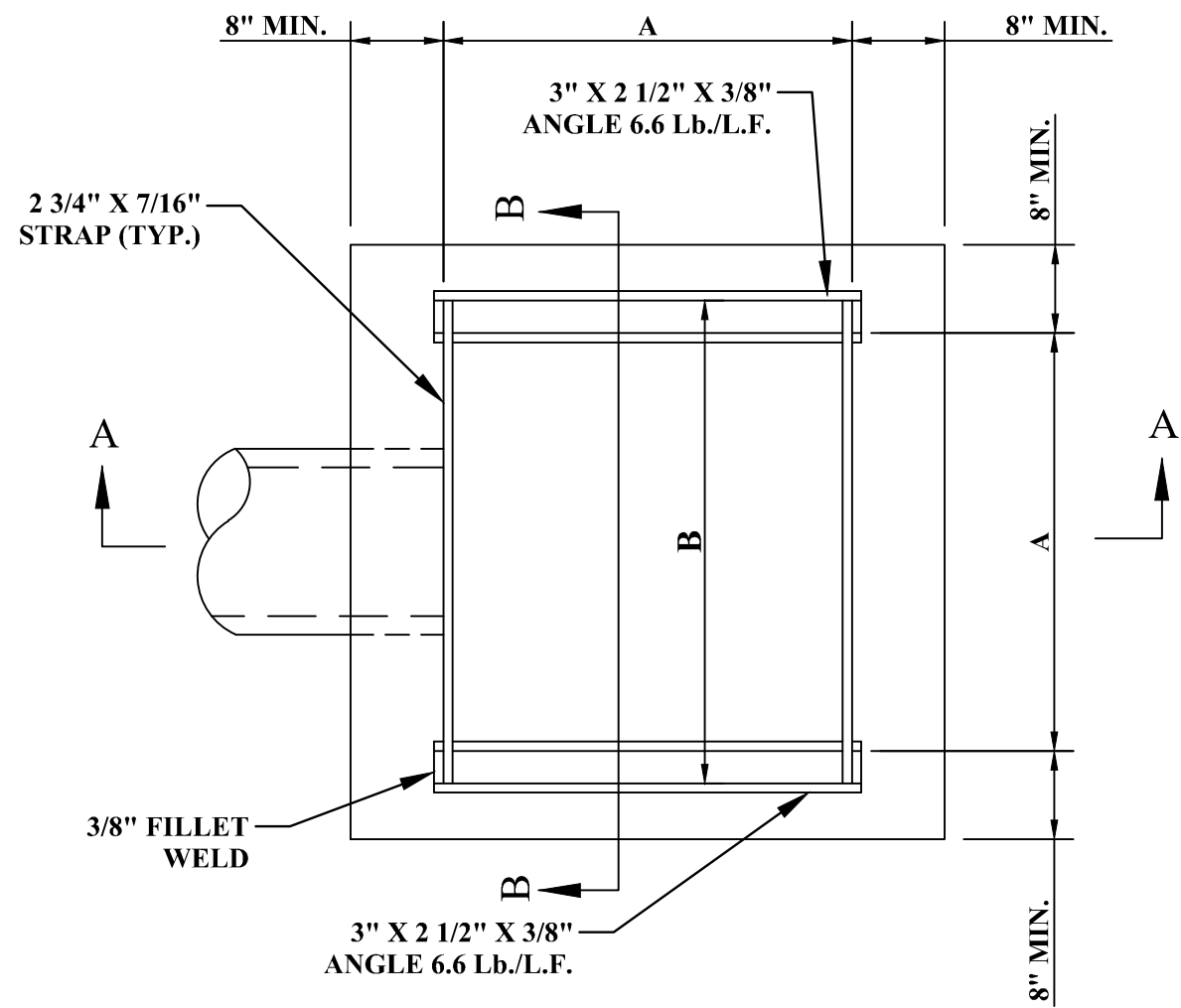


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PLOT DATE/TIME: 7/28/2017 1:12 PM

INLET MOUNDING TABLE			
DITCH GRADE (%)		L1, HORIZONTAL LENGTH (FT.)	L2, HORIZONTAL LENGTH (FT.)
FROM	TO		
0	3	10	15
3	5	9	20
5	7.5	8	40
7.5	UP	SPECIAL DESIGN	SPECIAL DESIGN



SECTION A-A  
(TYPE 2 GRATE SHOWN)

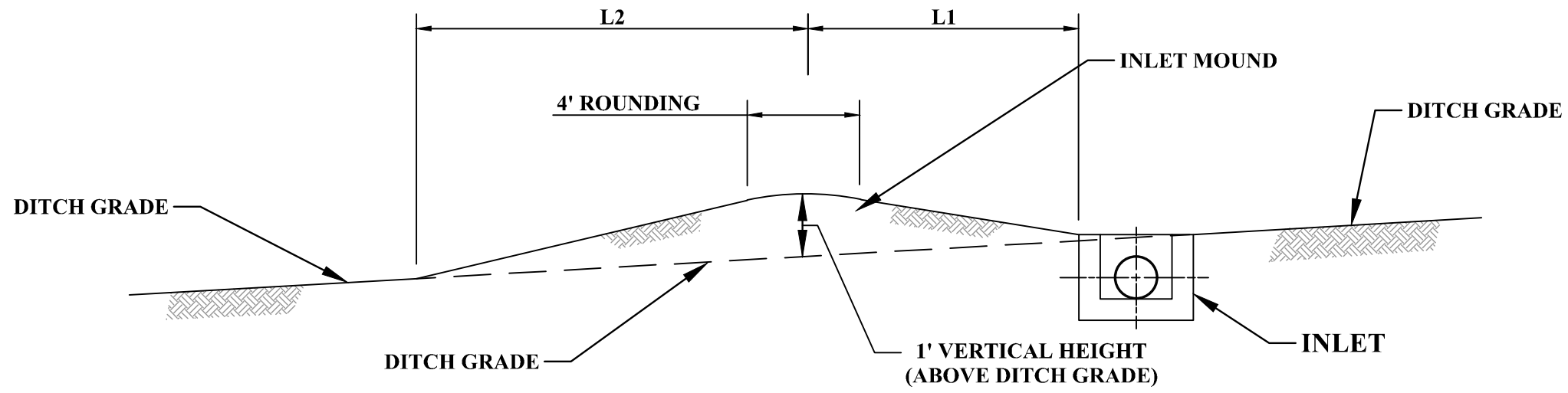


PLAN

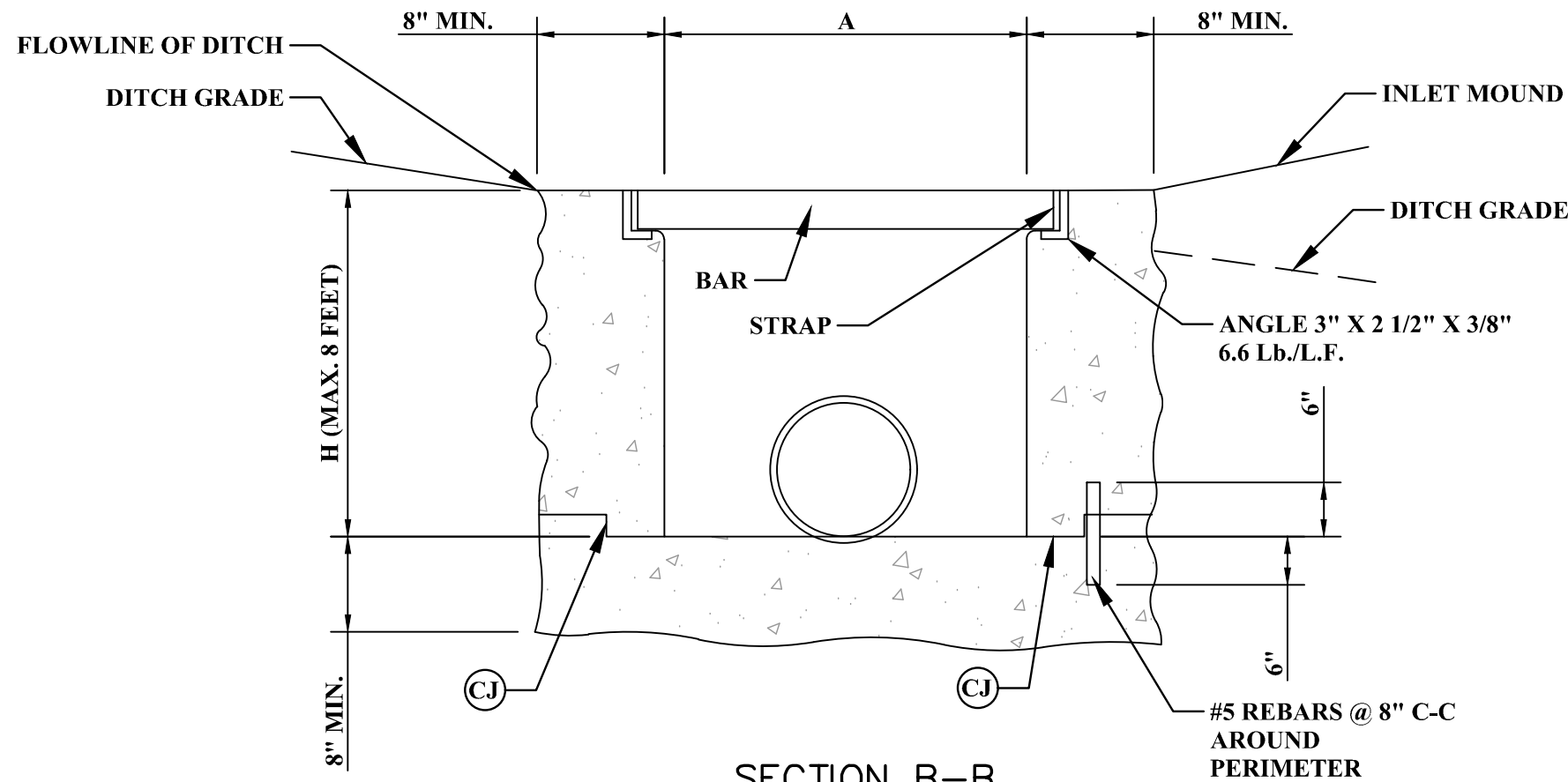
DIMENSIONS						TYPE 2 GRATE			FRAME	TYPE 1 GRATE		
PIPE SIZE	A	B	C	D	H (min.)	F	BARS	WT.	WT.	F	BARS	WT.
18"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-0"	3 3/8"	7	223	62	1 3/8"	15	453
21"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-3"	3 3/8"	7	223	62	1 3/8"	15	453
24"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-6"	3 3/8"	7	223	62	1 3/8"	15	453
27"	3'-0"	3'-6"	2'-11 3/4"	3'-5 3/4"	2'-9"	3 3/8"	8	279	69	1 3/8"	17	566
30"	3'-6"	4'-0"	3'-5 3/4"	3'-11 3/4"	3'-0"	3 3/8"	9	357	80	1 3/8"	21	797
33"	3'-9"	4'-3"	3'-8 3/4"	4'-2 3/4"	3'-3"	3 3/8"	10	419	85	1 3/8"	21	847
36"	4'-0"	4'-6"	3'-11 3/4"	4'-5 3/4"	3'-6"	3 3/8"	11	486	90	1 3/8"	23	981
42"	4'-6"	5'-0"	4'-5 3/4"	4'-11 3/4"	4'-0"	3 3/8"	12	587	101	1 3/8"	27	1277
48"	5'-0"	5'-6"	4'-11 3/4"	5'-5 3/4"	4'-6"	3 3/8"	14	748	112	1 3/8"	29	1507

TABLE NOTE: GRATE AND FRAME WEIGHTS ARE FOR INFORMATION ONLY AND WILL INCREASE IF LARGER STRAPS AND BARS ARE USED.

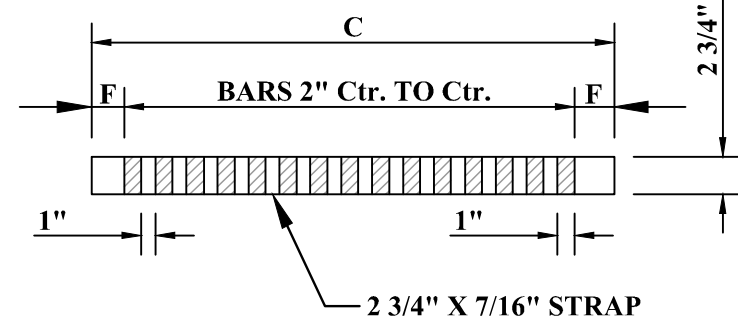
THE FOLLOWING SUBSTITUTIONS IN DIMENSIONS ARE ACCEPTABLE FOR FABRICATING THE GRATE AND FRAME:  
STRAP THICKNESS: 1/2" STRAP DEPTH: 3" BAR DEPTH: 3"



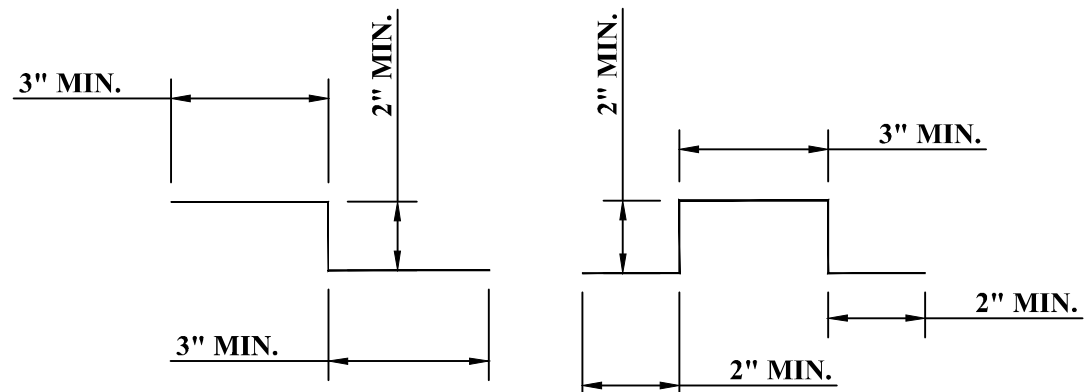
MOUNDING DETAIL  
MEDIAN AND SIDE DITCHES



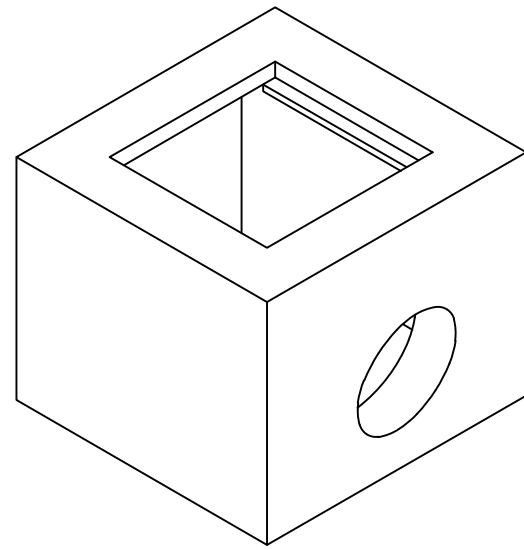
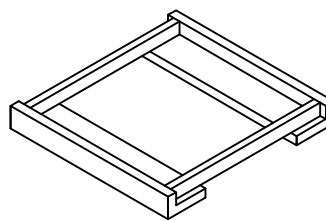
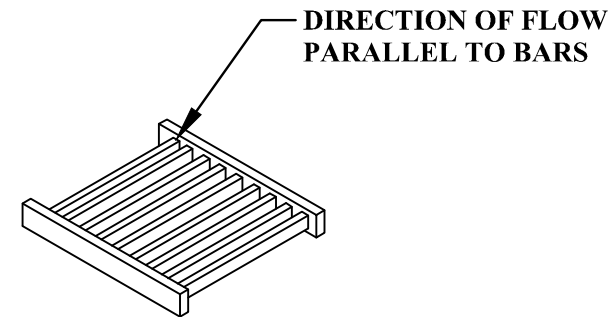
SECTION B-B



SECTION THROUGH TYPE 1 GRATE



CONSTRUCTION JOINT DETAILS



EXPLODED DETAIL

#### NOTES:

TYPE 2 GRATE, A RURAL AND EXPRESSWAY TYPE GRATE SHALL BE USED AT ALL LOCATIONS UNLESS OTHERWISE SPECIFIED ON THE PLANS. TYPE 1 GRATE, AN URBAN TYPE GRATE, SHALL BE USED ONLY AT SPECIALLY DESIGNATED LOCATIONS.

THE CONTRACTOR, AT HIS OPTION, MAY DELETE THE FRAME AS SHOWN HEREIN IF THE INLET IS CAST IN A MANNER WHICH WILL ALLOW CONCRETE TO REPLACE THE AREA SHOWN AS OCCUPIED BY THE FRAME, AND THE GRATE SUPPORTING LEDGES DO NOT PERMIT THE GRATE TO ROCK.

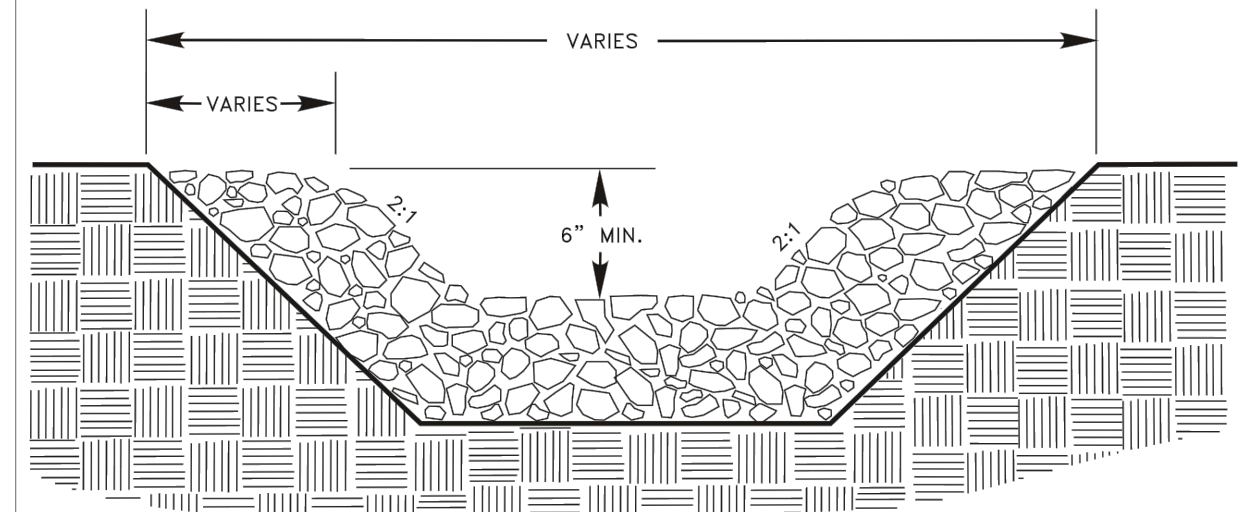
THE MOUNDING DETAIL AS SHOWN IS NOT REQUIRED WHEN AN INLET IS PLACED IN A VERTICAL SAG.

OPTIONAL CONSTRUCTION JOINTS LABELED "CJ" MAY BE KEYED OR DOWELED AS PER THE TYPICAL DETAILS SHOWN HEREIN OR AS APPROVED BY THE ENGINEER.

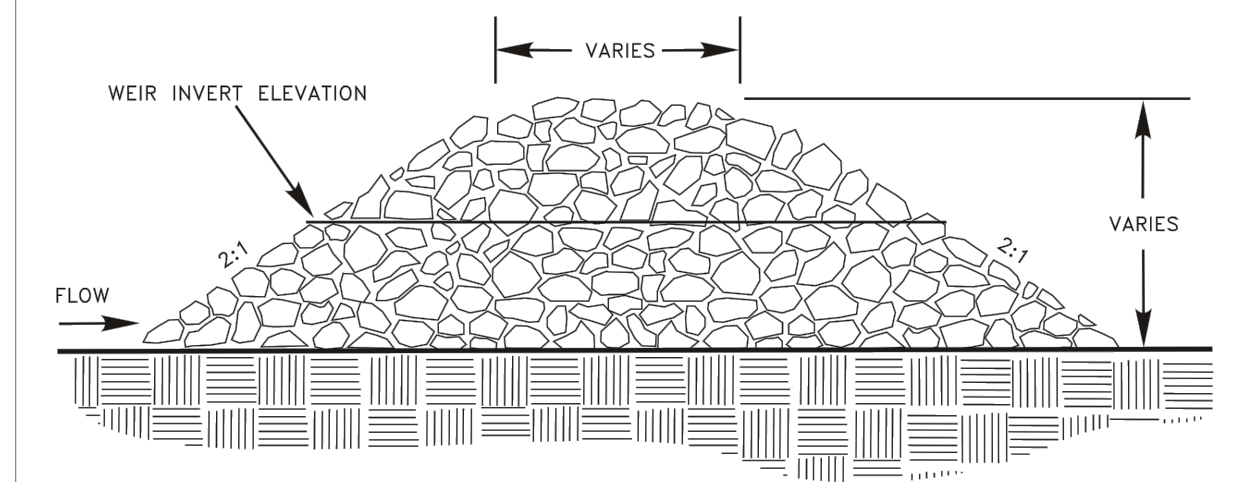
TYPE G INLET DETAIL  
NOT TO SCALE

FIGURE 3.05.1

### ROCK CHECK DAM



ELEVATION

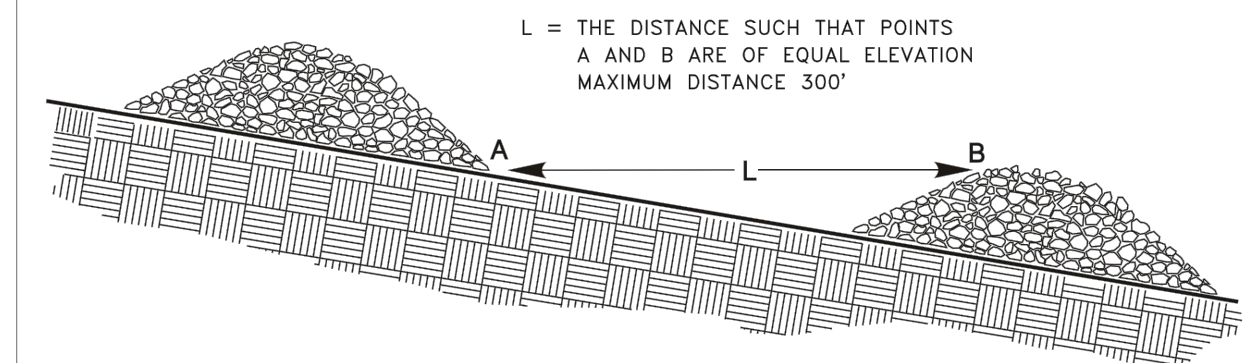


CROSS SECTION

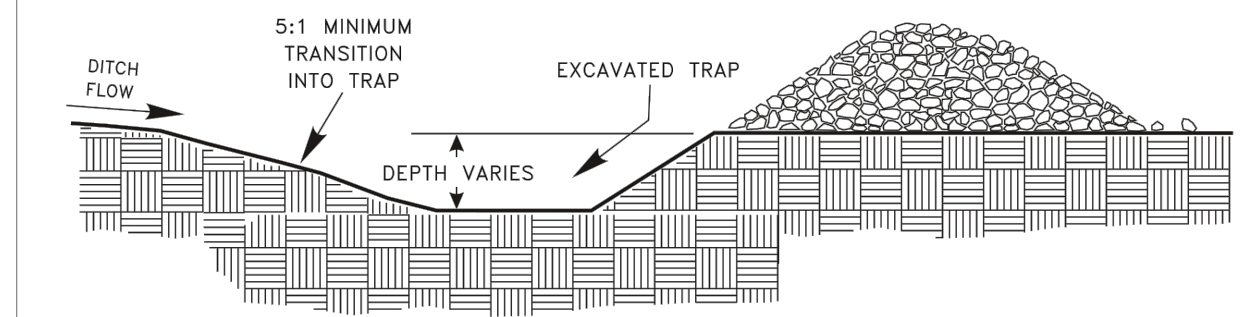
3.05-3

FIGURE 3.05.2

### ROCK CHECK DAM



CHECK DAM SPACING



CHECK DAM WITH SUMP

3.05-4

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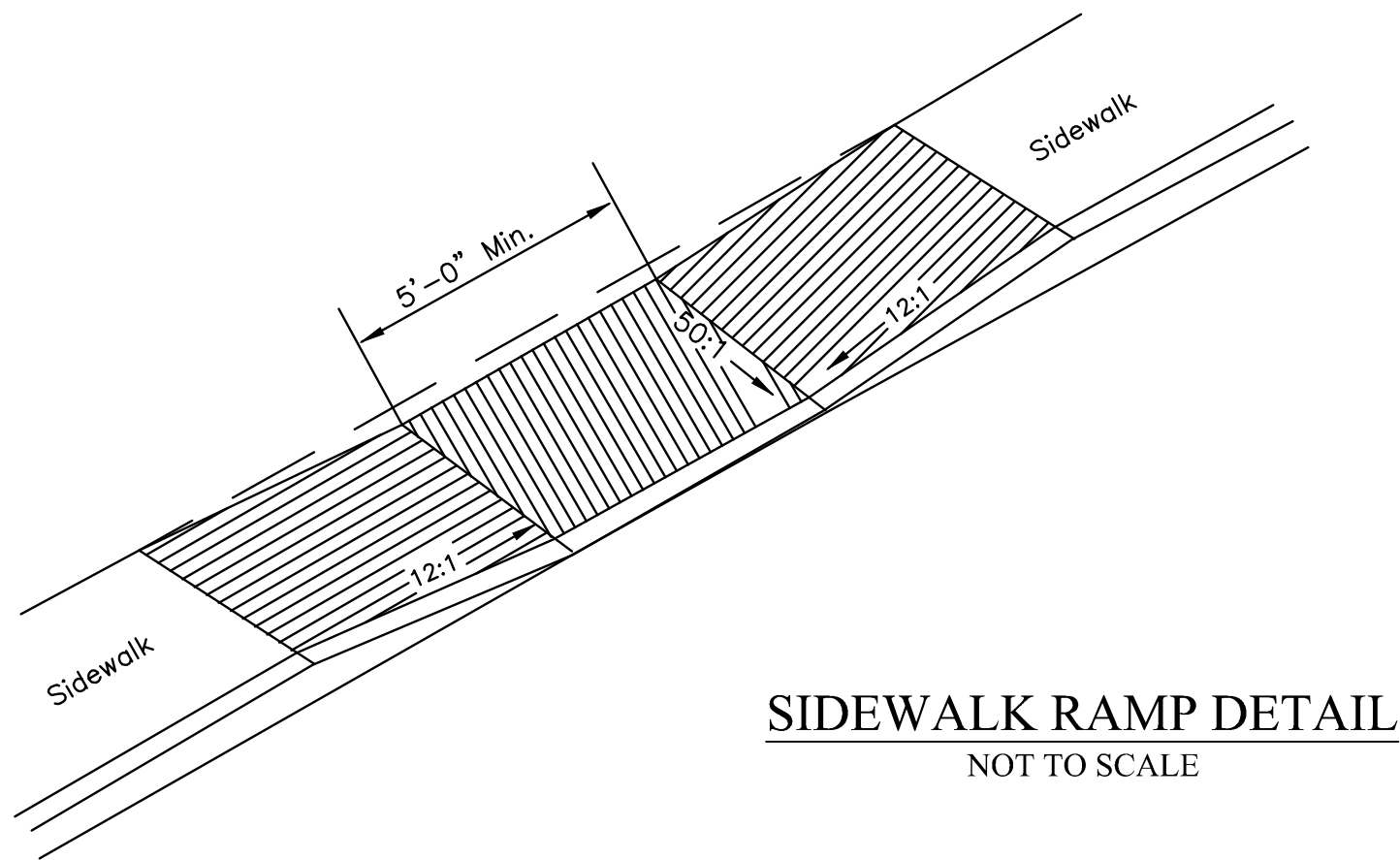


PHASE No.	
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PROJECT No.	
101-030-3203	

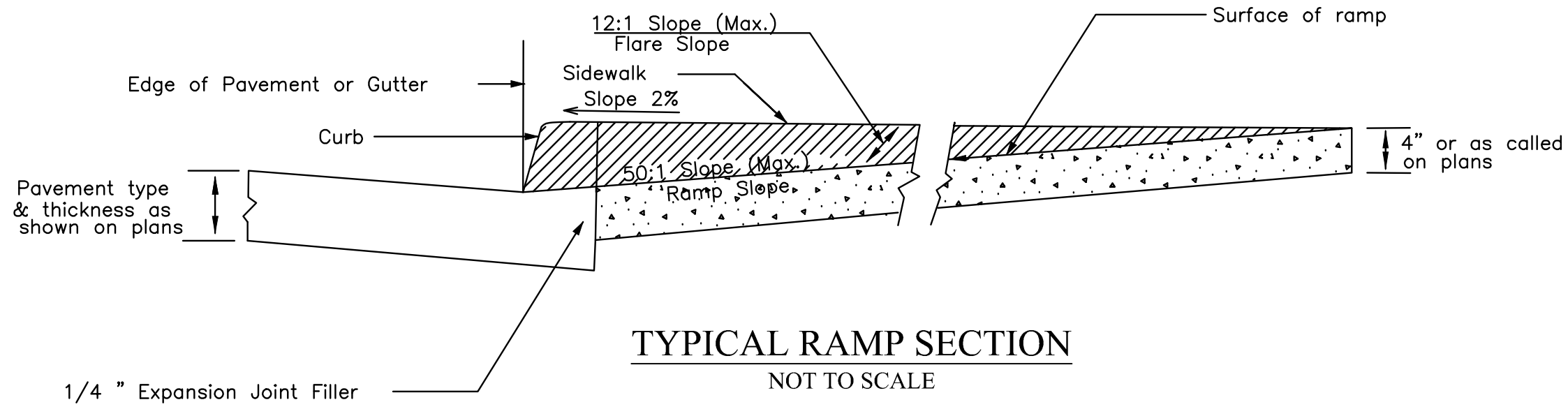
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RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
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SHEET No.

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SIDEWALK RAMP DETAIL  
NOT TO SCALE



TYPICAL RAMP SECTION  
NOT TO SCALE

12" x 18" x 1/8" ALUMINUM HANDICAPPED PARKING SIGN TO READ "RESERVED PARKING" W/IDENTIFICATION SYMBOL, BOLT TO CHANNEL W/3/8" CADMIUM PLATED BOLTS, NUTS, AND WASHERS

CHANNEL

PAVEMENT

SEE ANCHORING DETAIL FOR ANCHORING SPECIFICS.



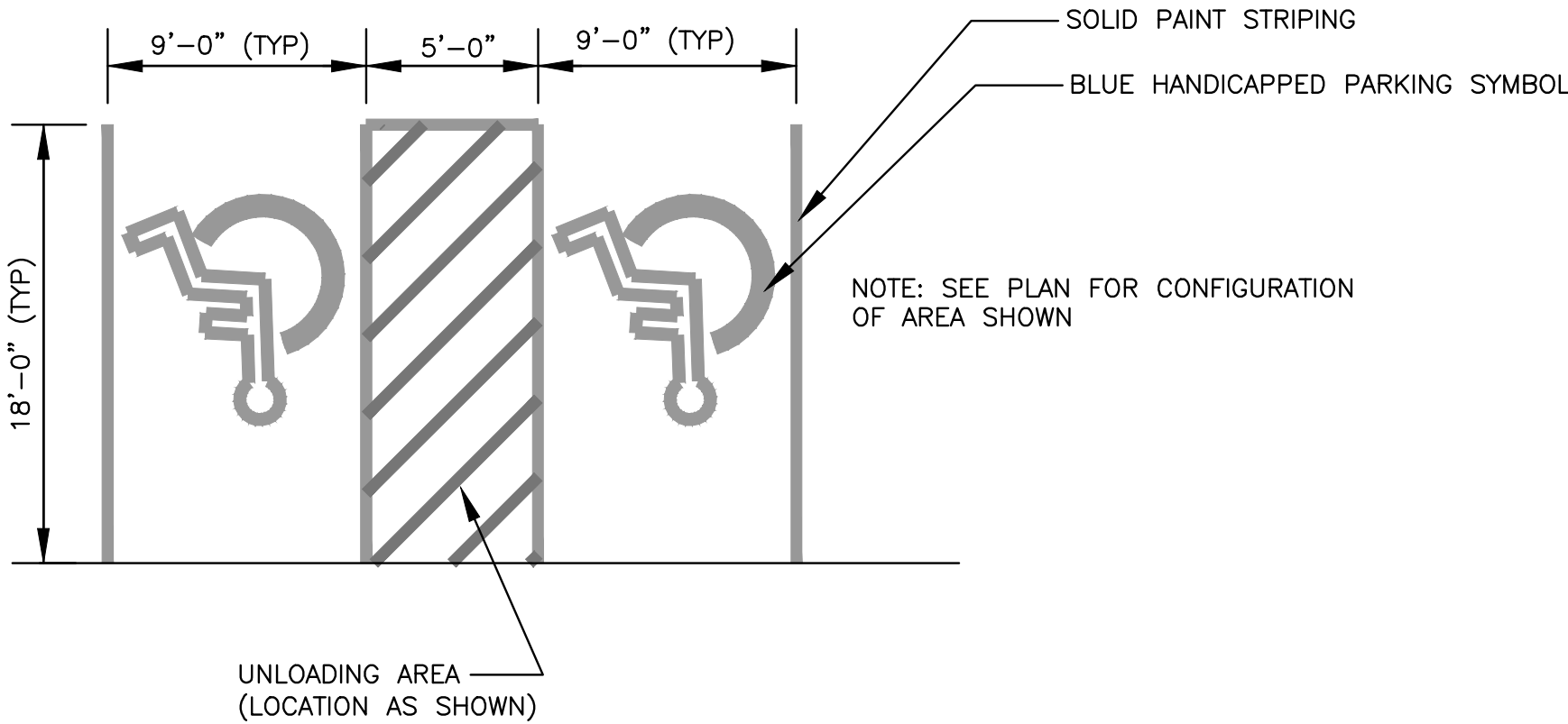
M. U. T. C. D.  
R7-8

NOTES:

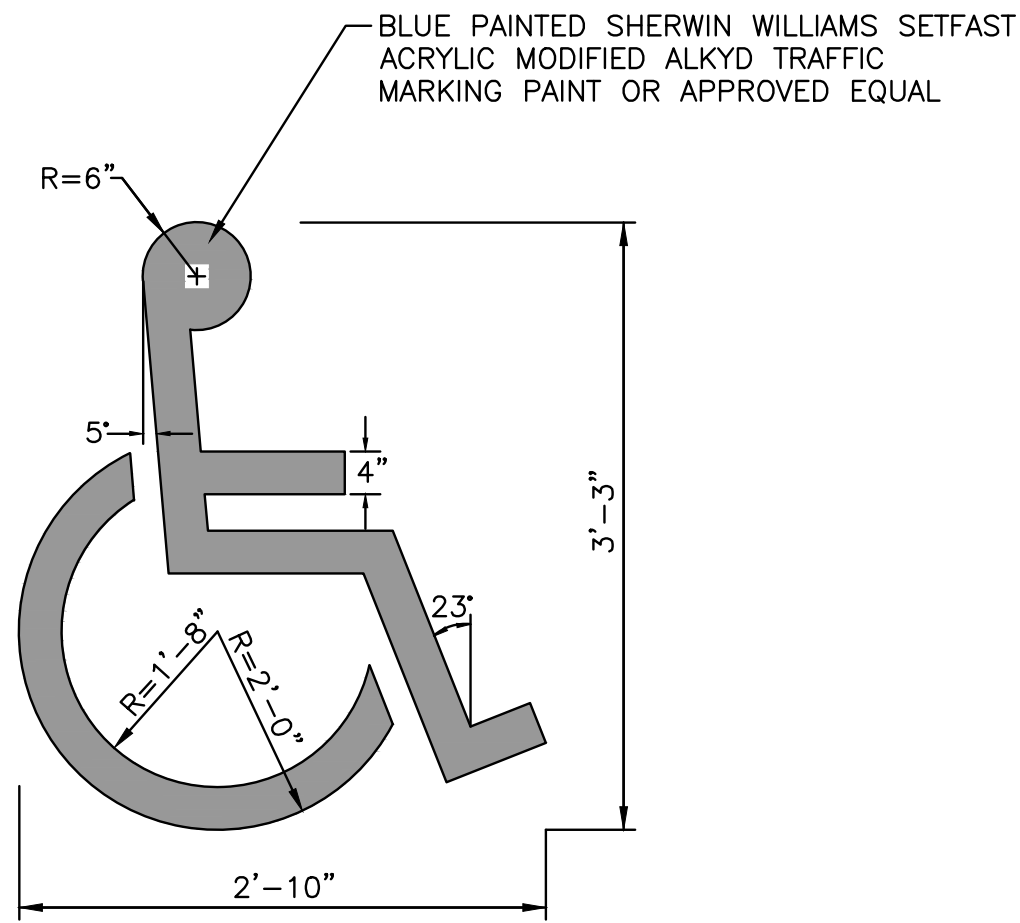
- PLACE BOTTOM OF SIGN 5'-0" ABOVE GRADE
- MOUNT ON STANDARD "T" RAIL W/BASE POST HAVING A MIN. WEIGHT OF 6.5 lbs.

HANDICAPPED SIGNAGE  
NTS

ACCESSIBLE PARKING SIGN  
NTS



HANDICAPPED PARKING  
NTS



INTERNATIONAL HANDICAP SYMBOL  
NTS

LAYOUT TAB: DETAILS (6)  
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EROSION & SEDIMENTATION CONTROL PLANS  
RAN 5 PROJECT  
JEFFERSON COUNTY, WEST VIRGINIA  
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SHEET No.
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**APPENDIX E**

**SECONDARY CONTAINMENT  
DRAINAGE LOG**



## Secondary Containment Drainage Log



Location: \_\_\_\_\_

[illegible]



## **APPENDIX F**

### **Ran 5 Project STORM WATER POLLUTION PREVENTION TRAINING LOG**

[illegible]

## **APPENDIX G**

**Roxul**

**EROSION & SEDIMENT CONTROL REPORT**

# Erosion and Sedimentation Control Inspection Form

## BMP INSPECTIONS REQUIRED WEEKLY AND AFTER MEASURABLE RAIN EVENTS

SITE: Roxul USA, Inc. – Ran 5 Project

INSPECTION DATE:

Rain Event (Y/N):

If yes, date of rain event:

Rainfall Amount:

Erosion and Sedimentation Control Measures	Yes/No*	Location (Station #)	Corrective Action (if needed)	Date Completed
<b>Rock Construction Entrance</b>				
Rock thickness maintained at entrance			Add rock from stockpile to maintain thickness	
Stockpile maintained on site for maintenance				
Sediment present on roadway			Remove all sediment from roadway	
<b>Silt Fence (SF)</b>				
Sediment present above ½ height of SF			Remove sediment	
Any section torn/collapsing/sagging			Fix and/or replace section	
Runoff escaping around SF			Extend SF	
<b>Rock Filter Outlet (RFO)</b>				
Sediment present above ⅓ height of outlet			Remove sediment	
Clogged filter stone			Replace	
<b>Sump Filter (RFO approved alternative)</b>				
Sediment present above ⅓ height of barrier			Remove sediment	
Filter in use for >3 months			If yes, replace barriers	
<b>NDPES Signage</b>				
Posted in proper location			Repost in proper location	
Sign in satisfactory condition			Replace sign	
<b>Compost Filter Sock</b>				
Sediment present above ½ height of filter sock			Remove sediment	
Any section torn/damaged			Fix and/or replace section	
<b>Miscellaneous</b>				
Staging areas/Parked equipment located within 100' of stream/wetland			Relocate to a distance >100' from stream/wetland	

\* If an answer does not apply, put N/A

Comments:

Inspector: \_\_\_\_\_

Signature: \_\_\_\_\_

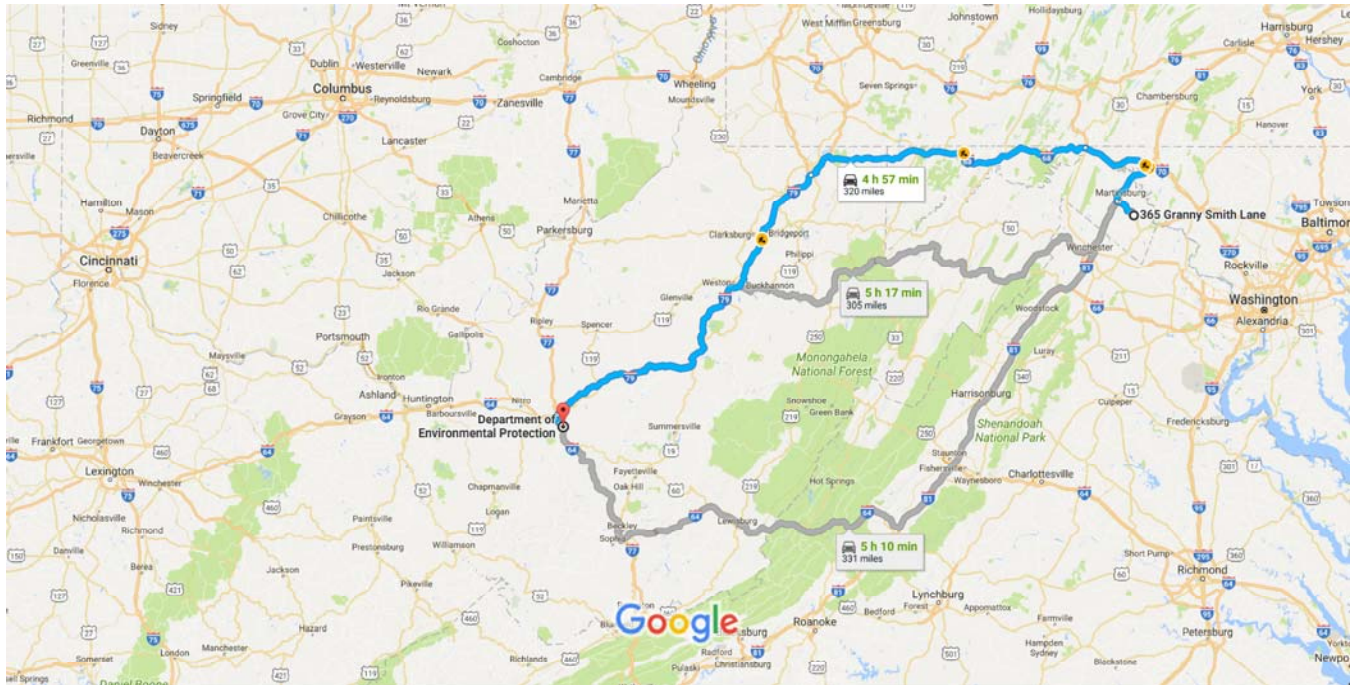


## **APPENDIX H**

### **DRIVING DIRECTIONS FROM WVDEP CHARLESTON OFFICE**



365 Granny Smith Lane, Kearneysville, WV to Department of Environmental Protection Drive 320 miles, 4 h 57 min



Map data ©2017 Google United States 20 mi

## 365 Granny Smith Ln


Kearneysville, WV 25430

### Get on I-81 N in Martinsburg from WV-9 W


- ↑ 1. Head northwest on Granny Smith Ln toward Stubbs Rd 17 min (9.8 mi)
- ➡ 2. Turn right onto Stubbs Rd 0.4 mi
- ↩ 3. Turn left onto WV-480 S 0.7 mi
- ↑ 4. Continue onto Leetown Rd 0.1 mi
- ⤴ 5. Turn right onto the ramp to Martinsburg 0.6 mi
- ⤴ 6. Merge onto WV-9 W 0.2 mi
- ↑ 7. Continue onto WV-45 W 6.7 mi
- ⤴ 8. Use the right lane to merge onto I-81 N via the ramp to Hagerstown 0.8 mi

**Take I-68 W and I-79 S to 35th St Southeast Bridge in Charleston. Take exit 98 from I-77 S**

4 h 29 min (308 mi)


- 

9. Merge onto I-81 N

 Entering Maryland

17.1 mi


---



10. Take exit 4 for Interstate 70 E/Interstate 70 W toward Frederick/Hancock

0.2 mi


---



11. Keep left at the fork, follow signs for I-70 W/Hancock and merge onto I-70 W

25.4 mi


---




12. Use the left 2 lanes to take exit 1A for I-68 W/US-40 W toward Cumberland


0.3 mi

---




13. Continue onto I-68 W/US-40 W

 Continue to follow I-68 W

 Entering West Virginia

111 mi


---



14. Use the left 2 lanes to merge onto I-79 S toward Fairmont

149 mi


---



15. Merge onto I-77 S

4.4 mi

---



16. Take exit 98 toward WV-61/35th St Bridge

0.1 mi

**Take MacCorkle Ave SE to 57th St SE**

7 min (2.5 mi)

- 

17. Continue onto 35th St Southeast Bridge

0.2 mi

---



18. Continue onto 35th St SE/Kanawha City Bridge

 Continue to follow 35th St SE

0.2 mi

---



19. Turn left onto MacCorkle Ave SE

2.0 mi

---



20. Turn right onto 57th St SE

 Destination will be on the right

0.1 mi

**Department of Environmental Protection**

601 57th St SE, Charleston, WV 25304

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the

map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



## **APPENDIX I**

### **PUBLIC NOTICE SIGN**

**For Info on NPDES Storm Water Permit  
To comment on Sediment Control Plan:**

**Call: 800-654-5227**

or

[DEP.Plan@wv.gov](mailto:DEP.Plan@wv.gov)

**DEP 601 57<sup>th</sup> Street SE, Charleston WV 25304**

**Application Date: *07/28/2016***

**Roxul USA, Inc.**

**Ran 5 Project**

**Emergency 304-624-4108**