PIEDMONT TRIAD AIRPORT AUTHORITY

November 24, 2015

U.S. Army Corps of Engineers
Wilmington District
Raleigh Regulatory Field Office
3331 Heritage Trade Dr., Suite 105
Wake Forest, NC 27587

Attention: Mr. David Bailey

NC Department of Environmental Quality
Division of Water Resources
401 & Buffer Permitting Unit
512 N. Salisbury St., 9th Floor
Raleigh, NC 27604

Ms. Karen Higgins

Subject: **Application for Section 404 Individual Permit, Section 401 Water Quality Certification, and Jordan Buffer Allowance for HAECO Facility Improvements at Piedmont Triad International Airport, Guilford County**

The Piedmont Triad Airport Authority (PTAA) hereby applies for Individual Permit and Water Quality Certification under Sections 404 and 401 of the Clean Water Act and 15A NCAC 2H .0500 and Jordan Buffer Allowance under 15A NCAC 2B .0267 for unavoidable impacts to jurisdictional Waters of the United States for improvements to the Timco Aviation Services *dba* Haeco Airframe Services (HAECO) tenant facility at the Piedmont Triad International Airport (PTIA). This project was addressed in a short form Environmental Assessment (EA) pending a Finding of No Significant Impact (FONSI) by the Federal Aviation Administration (FAA), consistent with the National Environmental Policy Act (NEPA). Jurisdictional resources within the project area have been verified (SAW-2015-00920) by the United States Army Corps of Engineers (USACE) and the North Carolina Department of Environmental Quality (NCDEQ) Division of Water Resources (DWR).

The existing HAECO facility is a purpose-built facility complex for aircraft base maintenance, located on approximately 112 acres Southeast of PTIA Runway 5R/23L, between the Cessna Citation Service Center (to the Southwest) and the Honda Aircraft Company World Headquarters (to the Northeast). The complex includes three wide-body hangars (Hangars I-III) as well as a fourth (Hangar IV) for narrow body aircraft. The hangars are complemented with 60 acres of ramp parking space to accommodate HAECO's commercial, government, military, and other private aircraft owners and operators. The facility complex also includes corporate and customer offices; an on-site training center; shipping and receiving; and HAECO's engineering design, integration, and manufacturing division.

1000A Ted Johnson Parkway • Greensboro, North Carolina 27409 • Phone: 336.665.5600 • Fax: 336.665.1425

Proposed Project

The proposed HAECO Facility Improvements include site preparation of approximately 16 acres of Airport land to be added to the existing HAECO facility for aviation-related development, including clearing, grading, fill, and excavation for:

1. Expansion of the existing concrete apron by approximately 204,600 sq. ft., with engine run-up pad and 21,200 sq. ft. connector throat to an existing Taxiway M connector (the connector throat will also link the two sides of the HAECO complex);
2. Construction of an approximately 177,400 sq. ft. two-bay wide-body aircraft maintenance hangar;
3. Construction of an approximately 33,810 sq. ft. support annex;
4. Construction of a new fire/water provision and expansion of the existing hazardous materials (HazMat) facility;
5. Addition of vehicle and pedestrian access and fire lanes.

Extension of utilities to the new structures including communications, electrical, natural gas, water, and sanitary sewer (land disturbance for utility extensions are anticipated to be within the proposed project grading limits and will not impact additional special resources). Stormwater management and off-site mitigation for unavoidable wetland and stream impacts are also anticipated.

Project Purpose and Need

The proposed improvements would address the need to service two wide-bodied aircraft simultaneously by providing movement and hangar space. HAECO requires the capacity to service wide-bodied aircraft to meet current demand and to integrate its US operations with its international business of maintaining wide-bodied aircraft. These improvements will also provide a needed connection between the two sides of the existing HAECO complex to allow for movement of vehicles, supplies and equipment from one side to the other without having to cross airport taxiways or to depart and reenter secured areas for travel along public roads. The project would increase operational capabilities and improve efficiency at HAECO's PTIA facility.

Affected Environment

The proposed project is located entirely within the existing airport property. The HAECO facility is bounded by the PTIA Air Operations Area (AOA) to the Northwest, by Radar Road to the Southeast and by additional jurisdictional resources (wetlands and streams) then adjacent PTIA tenants to the Southwest and Northeast. The location is predominantly developed (aprons, taxiways, parking, hangars, buildings, and other structures) with maintained in-field lawns and stormwater/fire management ponds. The project area is located between the HAECO Hangars I-III complex to the Southwest and the Hangar IV complex to the Northeast. This approximately 16-acre site includes nearly 11 forested acres with 1,601 linear feet unnamed perennial stream tributaries to Horsepen Creek and 0.81 acres abutting riparian wetlands.

Alternatives to the Project

During early project planning, consideration was given to locating the proposed new hangar adjacent to HAECO Maintenance Hangar I, at the southwest end of the HAECO facility, but this alternative would have required removal and replacement of the fire suppression system for existing Hangars I-III and would have reduced employee parking for those hangars. This

alternative involved significant relocation of utilities and complicated employee access. This alternative does not satisfy the purpose and need for the project and was not carried forward.

There are no reasonable actions, other than the preferred alternative, that feasibly substitute for the proposed project. The project, requiring specific dimensions and orientation of components, must be located at the existing HAECO facility, at the area available between existing Hangars III and IV. Locating the project on the northeast side of Hangar IV would eliminate some of the essential facility parking and fail to connect the Hangar IV facility with the rest of the HAECO complex. Locating the project on a site that is not contiguous with the existing HAECO facility would also fail to provide the necessary internal connection between the HAECO hangars and result in duplication of utilities, storm water management controls and other support facilities that are capable of serving an integrated facility.

For a "No-Action / No-Permit" alternative, HAECO would have to continue routing aircraft and vehicular traffic on airport taxiways or through security and along public roads in order to traverse from one side of its existing complex to the other. HAECO would be required to explore other sites, other airports, and/or construct entirely new facilities in order to address its operational need to service wide-bodied aircraft.

The preferred alternative is the only reasonable alternative that meets the project purpose and need. Due to the limited available space and location of streams and wetlands on both sides of and in the middle of the HAECO property, there is no project alternative which does not impact jurisdictional resources. Minimization of project impacts by decreasing the size of the proposed hanger is not possible because it is sized for the wide-bodied aircraft specified by the project need and purpose, and the size of the aircraft ramp cannot be reduced without sacrificing maneuvering space that is required by aircraft entering and exiting from the hangar or without eliminating the connector throat to Hangar IV. Retaining walls to minimize the side slopes would not reduce stream and wetlands impacts since it is the hangar structure itself, and the ramp pavement, that overlap the stream and wetland sites rather than the side slopes.

Minimization of Impacts

Based on the limited space at the HAECO facility, constraints of the site (jurisdictional resources on both sides and in the middle of the facility), and lack of practicable alternatives; it is anticipated that 1,601 linear feet perennial channel and 0.81 acres abutting wetlands will be impacted by the proposed project. PTAA will minimize potential unavoidable adverse effects of the Project consistent with FAA requirements and Section 404(b)(1) guidelines to the extent possible as follows:

- Construction of stream culverts will minimize smothering of organisms by utilizing "pump-around"; minimize construction time; control turbidity through adherence to the Erosion and Sedimentation Control (E&SC) Plan; avoid unnecessary discharge; prevent creation of standing water; and prevent drainage of wet areas.
- During construction, physiochemical conditions will be maintained and potency and availability of pollutants will be reduced; material to be discharged will be limited; treatment substances may be added if necessary; chemical flocculants may be utilized to enhance the deposition of suspended particulates in appropriate disposal areas.
- The effects of dredged or fill material may be controlled by selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into

the surrounding aquatic ecosystem will be reduced. These methods include using containment levees, sediment basins, and cover crops to reduce erosion.

- Discharge effects will also be controlled by containing discharged material properly to prevent point and nonpoint sources of pollution; and timing the discharge to minimize impact, for instance during periods of unusual high water flows.
- The effects of a discharge will be minimized by the manner in which it is dispersed, such as, where environmentally desirable, orienting dredged/fill material to minimize undesirable obstruction to the surface water or natural flow, and utilizing natural contours to minimize the size of the fill; using silt screens or other appropriate methods to confine suspended particulates/turbidity to a small area where settling or removal can occur; selecting sites or managing discharges to confine and minimize the release of suspended particulates to give decreased turbidity levels and to maintain light penetration for organisms; and setting limitations on the amount of material to be discharged per unit of time or volume of receiving water.
- Discharge technology will be adapted to the needs of the site. The applicant will consider using appropriate equipment or machinery, including protective devices, and the use of such equipment in activities related to the discharge of dredged or fill material; employing appropriate maintenance and operation on equipment or machinery, including adequate training, staffing, and working procedures; using machinery and techniques that are especially designed to reduce damage to streams; designing access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement; employing appropriate machinery and methods of transport of the material for discharge.
- Minimization of adverse effects on populations of plants and animals will be achieved by minimizing changes in water flow patterns which would interfere with the movement of animals; managing discharges to avoid creating habitat conducive to the development of undesirable airport wildlife hazards; avoiding sites having unique habitat or other value, including habitat of threatened or endangered species; using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics; timing discharge to avoid spawning or migration seasons and other biologically critical time periods; and avoiding the destruction of remnant natural sites within areas already affected by development.

Compensatory Mitigation

As of November 1, 2015, there are no available USACE or NCDEQ approved mitigation bank stream (SMU) or wetland (WMU) credits available for the Cape Fear 02 Hydrologic Unit (HUC 03030002) https://ribits.usace.army.mil/, http://portal.ncdenr.org/c/document_library/. Compensation for unavoidable impacts to perennial stream channels and riparian wetlands will be provided off-site by the North Carolina Division of Mitigation Services (NCDMS). An In-Lieu Fee Request Form is being submitted to NCDMS and payment is pending approval by USACE and DWR.

Cumulative Impacts

No cumulative project environmental effects are anticipated: Past projects have included the nearby Honda MRO and Connector Road and the extension of Taxiway M. Only the Connector Road project involved quantifiable impacts (Nationwide 404/401 Permit and minor buffer variance for stream crossing). Future projects are the Cross-Field Taxiway and Northwest Development Site on the opposite side of the Airport in the Brush Creek rather than Horsepen Creek Sub-basin, and North Carolina Department of Transportation (NCDOT) roadway improvement projects in the project vicinity (I 73 Connector, US 220/NC 68 Connector, I 840, widening US 220, and widening Market Street). No significant environmental impacts have been determined for these projects. Cumulatively, the HAECO Facility Improvements would not add significant impacts, rather, the roadway improvements anticipate such development at PTIA.

Fish and Wildlife

As of March 25, 2015 the US Fish & Wildlife Service (USFWS) lists Small Whorled Pogonia (endangered) as the only protected species for Guilford County. The project is anticipated to have No Effect on this species - suitable habitat is not present at the project site and review of Natural Heritage Program (NCNHP) records indicated no known occurrences within 1 mile. No water body large enough and sufficiently open to be considered a potential feeding source for Bald Eagle (Bald & Golden Eagle Protection Act) is located within 1.13 miles of the project and there are no known occurrences of this species within 1 mile of the project. No Federal Candidate species are listed for Guilford County and there are no State-listed endangered or threatened species known to occur within 1 mile of the project.

Approximately 4.95 acres of Piedmont bottomland forest and 5.77 acres mixed pine/hardwood forest would potentially be directly impacted by the project. An approximately 0.75-acre non-jurisdictional fire-suppression pond will also be impacted. Wildlife potentially displaced include limited terrestrial and aquatic species typical of the area. Loss of this isolated potential habitat area will be mitigated in conjunction with the mitigation of wetland and stream impacts and will not result in fragmentation or impacts to off-site habitat.

Historic, Cultural, Scenic, and Recreational Values

No resources eligible for listing on the National Register of Historic Places (NRHP) will be impacted by the project according to the HPOWEB map. The North Carolina Department of Cultural Resources (NCDCR) State Historic Preservation Office (SHPO) had no comment in response to scoping or to the draft EA for the proposed project.

Stormwater

Stormwater control measures (SCMs) needed to develop the HAECO facility improvements in compliance with NCDEQ regulatory requirements for new airport development are described in the attached SCM Report. A 0.8-acre high flow rate bioretention pond will infiltrate runoff generated from the 1st inch of rainfall at a relatively high rate to satisfy the water quality requirements outlined in Session Law 2012-200. In addition to providing treatment for the proposed new impervious areas associated with the HAECO facility improvements, the SCM will replace the treatment being provided by the existing wet pond located on the northeastern side of the site. The proposed project may cause increases to peak flows downstream but will not flood

insurable structures, roads, or cause damage to existing property or the existing Harris Teeter detention pond.

Prior to the commencement of construction, an E&SC plan for the project will be submitted to NCDEQ and PTAA will obtain the applicable E&SC approval and National Pollutant Discharge Elimination System (NPDES) construction permit. Potential temporary impacts to surface water quality as a result of the Build Alternative construction activities will be effectively mitigated through adherence to the approved E&SC plan and permit requirements, as well as through compliance with FAA AC 150/5370-10B.

Other Federal, State, or Local Requirements

Through the NEPA process, FAA has explored practicable project alternatives and impact minimization prior to addressing compensatory mitigation (sequencing). FAA has also explored the cumulative impacts of the proposed project. These potential cumulative impacts are detailed in the EA/FONSI.

A lack of practical alternatives has been demonstrated pursuant to 15A NCAC 02H .0506(f). After consideration of size and configuration of the proposed activity, and all alternative designs, the basic project purpose cannot be practically accomplished in a manner which would avoid or result in less adverse impact to surface waters or wetlands.

Minimization of impacts has been demonstrated pursuant to 15A NCAC 02H .0506(g) because the surface waters are able to continue to support the existing uses after project completion, and the impacts are required due to the spatial and dimensional requirements of the project; the location of existing structural and natural features that dictate the placement and configuration of the proposed project; and the purpose of the project and how the purpose relates to placement and configuration.

The project: (1) has no practical alternative; (2) will minimize adverse impacts to surface waters based on consideration of existing topography, vegetation, fish and wildlife resources, and hydrological conditions; (3) will not result in the degradation of groundwater or surface waters; (4) will not result in cumulative impacts, based upon past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards; (5) provides for protection of downstream water quality standards through on-site stormwater treatment; and (6) provides for replacement of existing uses through mitigation. Additional regulatory requirements are addressed in the EA/FONSI.

We appreciate your consideration of this request. Please feel free to contact me (rossera@gsoair.org, 336.665.5620) or Richard Darling (rdarling@mbakerintl.com, 919.481.5740) with questions or comments. One (1) complete and collated original application and supporting documentation are being provided to USACE with four (4) complete and collated copies to NCDEQ along with the application fee.

Sincerely,

PIEDMONT TRIAD AIRPORT AUTHORITY

J. Alex Rosser, P.E.
Deputy Executive Director

RD/AR:rd

Enclosures Completed Eng. Form 4345 (3 pages, PTAA signed)
Permit Drawings (13 sheets, full size and 11"×17")
Stormwater Control Measures Report (31 pages)
In-Lieu Fee Request to NCDMS
PTAA Check for $570 as NCDEQ Application Fee

cc: Sue Homewood, DWR-WSRO
Richard Darling, Michael Baker Engineering, Inc.

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - J. Middle - Alex Last - Rosser	First - Richard Middle - B. Last - Darling
Company - Piedmont Triad Airport Authority	Company - Michael Baker Engineering, Inc.
E-mail Address - rossera@gsoair.org	E-mail Address - rdarling@mbakerintl.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1000A Ted Johnson Parkway	Address- 8000 Regency Parkway, Suite 600
City - Greensboro State - NC Zip - 27409 Country - USA	City - Cary State - NC Zip - 27518 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 336.665.5600 c. Fax 336.665.5694	a. Residence b. Business 919.481.5740 c. Fax 919.463.5490

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Richard B. Darling to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Alex Rosser — 11/24/2015

SIGNATURE OF APPLICANT — DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

HAECO Facility Improvements

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Unnamed tributaries to Horsepen Creek	Address 623 Radar Road
15. LOCATION OF PROJECT Latitude: °N 36.096914 Longitude: °W 79.931388	City - Greensboro State- NC Zip- 27410

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE

from I-40 take exit 212B, take ramp right for I-73 N / Future I-840 toward Bryan Blvd.; At exit 2, take ramp right and follow signs for W Friendly Ave.; Turn left onto W Friendly Ave.; Turn right onto Old Friendly Rd.; Turn right onto Radar Rd.; Arrive at 623 Radar Rd. - turn left into HAECO secure facility and announce arrival in intercom - follow directions from security personnel.

18. Nature of Activity (Description of project, include all features)

Site preparation of approximately 16 acres of Airport land to be added to the existing HAECO facility for aviation-related development, including clearing, grading, fill, and excavation for: Expansion of the existing concrete apron by approximately 204,600 sq. ft., with engine run-up pad and 21,200 sq. ft. connector throat to an existing Taxiway M connector (the connector throat will also link the two sides of the HAECO complex); Construction of an approximately 177,400 sq. ft. two-bay wide-body aircraft maintenance hangar; Construction of an approximately 33,810 sq. ft. support annex; Construction of a new fire/water provision and expansion of the existing hazardous materials (HazMat) facility; Addition of vehicle and pedestrian access and fire lanes. Extension of utilities to the new structures including communications, electrical, natural gas, water, and sanitary sewer (land disturbance for utility extensions are anticipated to be within the proposed project grading limits and will not impact additional special resources). Stormwater management and off-site mitigation for unavoidable wetland and stream impacts are also anticipated.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The proposed improvements would address the need to service two wide-bodied aircraft simultaneously by providing movement and hangar space. HAECO requires the capacity to service wide-bodied aircraft to meet current demand and to integrate its US operations with its international business of maintaining wide-bodied aircraft. These improvements will also provide a needed connection between the two sides of the existing HAECO complex to allow for movement of vehicles, supplies and equipment from one side to the other without having to cross airport taxiways or to depart and reenter secured areas for travel along public roads. The project would increase operational capabilities and improve efficiency at HAECO's PTIA facility.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Wetlands and streams must be filled in order to bring the site up to match existing taxiway and apron elevations. The proposed project is located entirely within the existing airport property. The HAECO facility is bounded by the PTIA Air Operations Area (AOA) to the Northwest, by Radar Road to the Southeast and by additional jurisdictional resources (wetlands and streams) then adjacent PTIA tenants to the Southwest and Northeast. The location is predominantly developed (aprons, taxiways, parking, hangars, buildings, and other structures) with maintained in-field lawns and stormwater/fire management ponds. The project area is located between the HAECO Hangars I-III complex to the Southwest and the Hangar IV complex to the Northeast. There are no reasonable actions, other than the preferred alternative, that feasibly substitute for the proposed project. The project, requiring specific dimensions and orientation of components, must be located at the existing HAECO facility, at the area available between existing Hangars III and IV.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
47,096 cy clean fill		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0.81 ac. wetlands, and

or

Linear Feet 1,601 l.f. perennial stream channel

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Based on the limited space at the HAECO facility, constraints of the site (jurisdictional resources on both sides and in the middle of the facility), and lack of practicable alternatives; impacts to streams and wetlands cannot be avoided. PTAA will minimize potential unavoidable adverse effects of the Project consistent with FAA requirements and Section 404(b)(1) guidelines to the extent possible. Compensation for unavoidable impacts to jurisdictional stream channel and riparian wetlands will be provided by the North Carolina Division of Mitigation Services (NCDMS).

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Timco Aviation Services dba HAECO Airframe Services; 623 Radar Road

City - Greensboro State - NC Zip - 27410

b. Address- Honda Aircraft Company Inc.; 6430 Ballinger Road

City - Greensboro State - NC Zip - 27410

c. Address- Textron Aviation - Cessna Citation Service Center; 615 Service Center Road

City - Greensboro State - NC Zip - 27410

d. Address- North Carolina Department of Transportation; 1020 Birch Ridge Drive

City - Raleigh State - NC Zip - 27610

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
FAA	EA		8/31/2015		

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT — 11/24/2015 DATE — SIGNATURE OF AGENT — 11/24/2015 DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

HAECO FACILITY IMPROVEMENTS

FOR

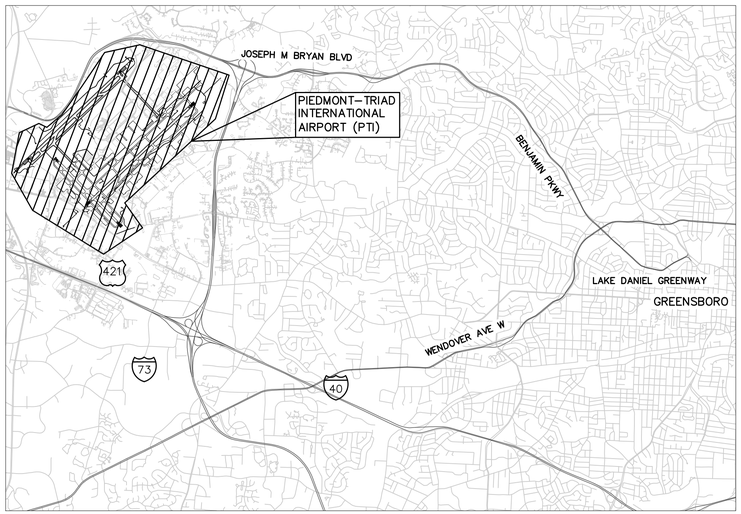
PIEDMONT TRIAD INTERNATIONAL AIRPORT (PTIA)

GREENSBORO, NORTH CAROLINA

NOV. 2015

WK DICKSON PROJ. NO. 20150125.00.RA
404/401 PERMIT SUBMITTAL

INDEX OF DRAWINGS

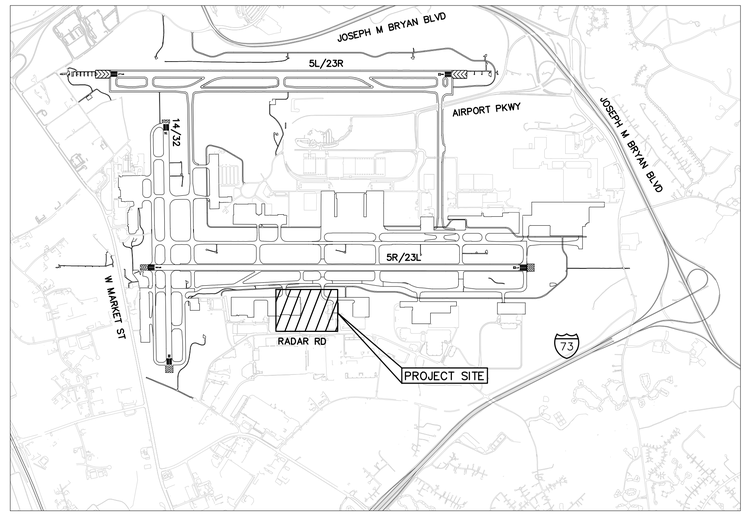


VICINITY MAP

1 0 0.5 1 2

1 inch = 1 mile

PIEDMONT TRIAD AIRPORT AUTHORITY



AIRPORT MAP

2000 0 1000 2000 4000

1 inch = 2000 ft.

Know what's below. Call before you dig

WK DICKSON community infrastructure consultants

REV RECORD:			REV RECORD:		
BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION

ISSUED RECORD:			NCDENR# ----
BY	DATE	DESCRIPTION	
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PROFESSIONAL SEAL

DRAWING STATUS - FOR PERMITTING ONLY - DO NOT USE FOR CONSTRUCTION - DRAWING STATUS -

WK DICKSON community infrastructure consultants
720 Corporate Center Drive
Raleigh, NC 27607
(t)919.782.0495
(f)919.782.9672
www.wkdickson.com
Transportation + Water Resources
Urban Development + Geomatics
NC LICENSE NO. F-0374

WKD PROJ.:20150125.00.RA
PROJ. ORIGIN DATE: NOV. 2015
P.M.: PDS
DRAWN BY: KCB/MRM

PROJECT NAME: HAECO FACILITY IMPROVEMENTS

DRAWING TITLE: COVER & INDEX SHEET

DRAWING NUMBER: C0

PLOT DATE: 11/13/2015

FILE PATH: J:\Projects\Piedmont Triad Airport Authority\2015012500RA - Aviation Tenant Site Development (Haeco)\CADD\WKD Plan Set\20150125_C_SHT_COVER - 30% .dwg

PROJECT DESCRIPTION:

THIS 30% PERMITTING PLAN SET PROVIDES THE DESIGN OF THE STORMWATER CONTROL MEASURES NEEDED TO DEVELOP THE HAECO FACILITY IMPROVEMENTS PROJECT AT THE PIEDMONT TRIAD INTERNATIONAL AIRPORT IN COMPLIANCE WITH THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) REGULATORY REQUIREMENTS FOR NEW DEVELOPMENT AT AN AIRPORT.

THE STORMWATER CONTROL MEASURES INCLUDE A HIGH FLOW RATE BIORETENTION POND, THE PROPOSED STORM SEWER SYSTEM, AND THE NECESSARY GRADING FOR THE SITE.

CONSTRUCTION OF THIS SITE WILL PERMANENTLY IMPACT STREAM CHANNELS AND WETLANDS. THESE IMPACTED FEATURES ARE IDENTIFIED ON THE EXISTING CONDITIONS AND DEMOLITION SHEETS OF THIS PLAN SET.

SEE THE CONSTRUCTION SEQUENCE NOTES ON THIS SHEET FOR THE STEP NECESSARY TO BRING THE PROPOSED BIORETENTION POND ONLINE.

GENERAL NOTES:

1. THE CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION OPERATIONS AS SHOWN ON THE PROJECT LAYOUT PLAN OR HIS APPROVED PHASING PLAN. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE ENGINEER TO MINIMIZE DISRUPTION TO LOCAL TRAFFIC OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE COMPLIANCE WITH SAFETY REQUIREMENTS & TO MINIMIZE INTERFERENCE TO LOCAL TRAFFIC OPERATIONS DURING CONSTRUCTION.
2. CONTRACTOR TO PROVIDE PRE & POST CONSTRUCTION SURVEY DATA TO THE ENGINEER. CONTRACTOR TO PROVIDE PRE-CONSTRUCTION SURVEY DATA TO THE ENGINEER 14 DAYS PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION & REPORT TO THE ENGINEER ANY VARIATIONS FROM THE INFORMATION SHOWN ON THE CONSTRUCTION PLANS.
3. CONTRACTOR WILL PROTECT EXISTING AIRPORT SECURITY FENCE ADJACENT TO THE PROJECT SITE AT ALL TIMES. NO UNAUTHORIZED PERSONNEL SHALL BE ALLOWED ON THE SITE.
4. AREAS OUTSIDE THE PROJECT LIMITS ARE DESIGNATED AS RESTRICTED AREAS. THE CONTRACTOR'S FORCES ARE PROHIBITED FROM ENTERING RESTRICTED AREAS AT ANY TIME, UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER OR AIRPORT MANAGEMENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, IDENTIFICATION, & PROTECTION OF ALL EXISTING UTILITIES (BOTH PUBLIC & PRIVATE) & NAVAIDS IN CONSTRUCTION AREA. ANY DAMAGES TO EXISTING UTILITIES OR NAVAIDS ON OR OFF AIRPORT PROPERTY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO REIMBURSEMENT WILL BE ALLOWED FOR UTILITY/NAVAID LOCATION, REPAIR, OR REPLACEMENT.
6. A LAND DISTURBANCE PERMIT IS REQUIRED FOR THIS PROJECT. SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PER THESE PLANS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THE APPROVED EROSION CONTROL PERMIT BEFORE NOTICE TO PROCEED
7. THE CONTRACTOR & HIS/HER EMPLOYEES SHALL NOT BE ALLOWED INTO ANY EXISTING BUILDINGS. A PORT-A-JOHN SHALL BE ON SITE AT ALL TIMES.
8. ALL DE-WATERING REQUIRED TO EXECUTE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. CONTRACTORS OPERATING CONSTRUCTION VEHICLES AND EQUIPMENT ON THE AIRPORT MUST BE PREPARED TO EXPEDITIOUSLY CONTAIN AND CLEAN-UP SPILLS RESULTING FROM FUEL OR HYDRAULIC FLUID LEAKS. TRANSPORT AND HANDLING OF OTHER HAZARDOUS MATERIALS ON AN AIRPORT ALSO REQUIRES SPECIAL PROCEDURES. SEE AC 150/5320-15, MANAGEMENT OF AIRPORT INDUSTRIAL WASTE.
10. CONTRACTOR SHALL PROVIDE RADIO COMMUNICATION TRAINING FOR VEHICLE DRIVERS ENGAGED IN CONSTRUCTION ACTIVITIES AROUND AIRCRAFT MOVEMENT AREAS.
11. ALL TEMPORARY MARKINGS SHALL BE IN COMPLIANCE WITH AC 150/5340-1L, STANDARDS FOR AIRPORT MARKINGS.

SAFETY & SECURITY:

1. IN ORDER TO CONSTRUCT THIS PROJECT WITH MINIMAL INTERFERENCE TO AIRPORT OPERATIONS, THE CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION OPERATIONS AS SHOWN ON THE CONSTRUCTION SEQUENCE AND SAFETY PHASING PLAN, & HIS APPROVED CONSTRUCTION PROGRESS SCHEDULE. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE ENGINEER TO MINIMIZE DISRUPTION TO AIRPORT OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE COMPLIANCE WITH SAFETY REQUIREMENTS AND TO MINIMIZE INTERFERENCE TO AIRPORT OPERATIONS DURING CONSTRUCTION.
2. CONTRACTOR SHALL OBTAIN, HAVE KNOWLEDGE OF, & INCORPORATE THE FOLLOWING SAFETY PROVISIONS INTO THE CONSTRUCTION PROJECT:

- OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION – AC 150/5370-2F.
- AIRPORT SAFETY SELF-INSPECTION – AC 150/5200-18C.
- SAFETY REQUIREMENTS OF THE SPECIFICATIONS.
- SECURITY REQUIREMENTS OF THE SPECIFICATIONS.

3. CONTRACTOR WILL MAINTAIN SECURITY WITHIN THE PROJECT SITE AT ALL TIMES. NO UNAUTHORIZED PERSONNEL SHALL BE ALLOWED ON THE SITE.
4. ALL CONSTRUCTION TRAFFIC SHALL ENTER & EXIT THE PROJECT SITE ONLY THROUGH CONSTRUCTION ENTRANCE GATE DESIGNATED BY THE ENGINEER. CONTRACTOR WILL BE RESPONSIBLE FOR SECURITY OF DESIGNATED ENTRANCE GATE & MUST ENSURE THAT THE GATE IS MANNED AT ALL TIMES WHILE UNLOCKED.
5. CONTRACTOR SHALL PROVIDE FLAGMEN AT ACCESS/HAUL ROUTES ON OR ADJACENT TO RUNWAYS OR TAXIWAYS OR AS DIRECTED BY THE ENGINEER TO ENSURE THAT TRAFFIC IS MAINTAINED ON THE DESIGNATED ROUTE.
6. AREAS OUTSIDE THE PROJECT LIMITS ARE DESIGNATED AS RESTRICTED AREAS. THE CONTRACTOR'S FORCES ARE PROHIBITED FROM ENTERING RESTRICTED AREAS AT ANY TIME, UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER OR AIRPORT MANAGEMENT.
7. CONSTRUCTION STAKE-OUT SHALL BE PERFORMED BY CONTRACTOR IN ACCORDANCE WITH ARTICLE 50-06 OF THE GENERAL PROVISIONS. THE ENGINEER SHALL PROVIDE THREE (3) TEMPORARY BENCH MARKS (TBM) FOR THE CONTRACTOR'S USE.
8. ALL PAVEMENT SHALL BE KEPT FREE OF ALL DEBRIS, DIRT, ETC., AT ALL TIMES. ANY SPILLAGE OF EXCAVATION OR OTHER MATERIALS SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR WITH A MOTOR DRIVEN SWEEPER. A PROGRAM OF REGULAR INSPECTION WILL BE PLANNED BY THE CONTRACTOR.
9. SINCE THE AIRPORT USERS SHALL BE WITHIN PROXIMITY OF THE PROJECT LIMITS THROUGHOUT THE DURATION OF THIS PROJECT, A COORDINATED EFFORT IN RESPECT TO SECURITY, SAFETY, & CONSTRUCTION IS ESSENTIAL. NUMEROUS CONSIDERATIONS MUST BE ADDRESSED IN THE CONTRACTORS WORK & SCHEDULE INCLUDING BUT NOT LIMITED TO THE FOLLOWNG:
    - CONSTRUCTION SEQUENCE
    - SECURITY CHECK POINTS
    - PROJECT CONSTRUCTION TRAFFIC
    - CONTRACTOR'S STAGING AREA
    - AREAS UTILIZED BY AIRPORT USERS
    - ADJACENT CONSTRUCTION BY OTHERS
10. CONSTRUCTION ACTIVITIES ARE SCHEDULED TO BE CONDUCTED IN AREAS WHICH WILL EFFECT THE AIRPORT OPERATIONS AREA (AOA). THEREFORE, THIS PROJECT MUST BE CONSTRUCTED WITH MINIMAL INTERFERENCE TO AIRCRAFT & SERVICE VEHICLE OPERATIONS. CLOSURES OF THE AOA SHALL BE COMPLETED IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE ON THIS PLAN.
11. CONTRACTOR SHALL PROVIDE STONE FOR CONSTRUCTION ENTRANCE PAD AS NECESSARY OR AS REQUIRED BY THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR THIS ITEM.
12. ALL VEHICLES USED ON THE AIRFIELD SHALL MEET AIRPORT REQUIREMENTS FOR MARKING & LIGHTING.
13. FOR ADDITIONAL SAFETY & SECURITY REQUIREMENTS, SEE THE LATEST VERSION OF FAA ADVISORY CIRCULAR 150/5370-2 – OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
14. CONSTRUCTION ACTIVITIES ARE SCHEDULED TO BE CONDUCTED IN AREAS WHICH WILL AFFECT THE AIRPORT OPERATIONS AREA (AOA). THEREFORE, THIS PROJECT MUST BE CONSTRUCTED WITH MINIMAL INTERFERENCE TO AIRCRAFT & SERVICE VEHICLE OPERATIONS. CLOSURES OF THE AOA SHALL BE COMPLETED IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCES WITHIN THIS PLANSET OR AS ORDERED BY THE ENGINEER.
15. OPERATIONAL SAFETY SHOULD BE A STANDING AGENDA ITEM DURING PROGRESS MEETINGS THROUGHOUT THE CONSTRUCTION PROJECT.

HAUL ROUTES, STAGING AREAS & CONSTRUCTION ACTIVITIES:

1. EXCEPT WHERE DESIGNATED ON PLANS OR AS AUTHORIZED BY ENGINEER, CONTRACTOR WILL NOT BE ALLOWED TO USE ANY OF THE EXISTING RUNWAYS OR TAXIWAYS AS PART OF THE HAUL ROAD.
2. CONTRACTOR SHALL MAINTAIN ALL AIRFIELD SAFETY DEVICES SUCH AS STAKED LIMIT LINES, FOR THE DURATION OF THE PROJECT AS REQUIRED. DAMAGED STAKES OR FLAGGING SHALL BE REPLACED IMMEDIATELY. CONTRACTOR TO SUBMIT PLAN SHOWING LOCATION OF LIMIT LINES FOR EACH PHASE & FOR PROJECT DURATION TO THE ENGINEER FOR APPROVAL.
3. THE CONTRACTOR'S STAGING AREA & HAUL ROUTES SHOWN ON THE PLANS ARE GENERAL & FOR INFORMATION PURPOSES THE ACTUAL SIZE & LOCATION OF STAGING AREAS & HAUL ROUTES WILL BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.
4. ALL EXISTING GRASSED AREAS WHICH ARE DISTURBED AS PART OF THE CONTRACTOR'S ACCESS ROAD, CONTRACTOR'S STAGING AREA, & HAUL ROUTES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AFTER COMPLETION OF THE PROJECT. IN ADDITION, ALL EXISTING ROADS THAT WILL BE USED AS THE CONTRACTOR'S HAUL ROUTE SHALL BE MAINTAINED DURING CONSTRUCTION & RESTORED TO THEIR PRE-CONSTRUCTION CONDITION. CONTRACTOR SHALL PROTECT NEWLY INSTALLED PAVEMENTS DURING POST-CONSTRUCTION REMOVAL OF EROSION CONTROL MEASURES WITH STEEL PLATES AND/OR LIGHTLY LOADED EQUIPMENT. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THIS ITEM.
5. ALL EQUIPMENT MUST BE RETURNED TO THE APPROPRIATE STAGING AREA (TRACK VERSUS NON-TRACK VEHICLES) AT THE END OF EACH WORK DAY & WHEN NOT ENGAGED IN THE CONSTRUCTION DURING NON-WORKING DAYS & NIGHTS. OWNER WILL DESIGNATE AREAS FOR CONTRACTOR'S EMPLOYEES AUTO PARKING.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING & PROVIDING ALL PERMANENT & TEMPORARY UTILITY CONNECTIONS FOR THE PROJECT.
7. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION & REPORT TO ENGINEER ANY VARIATIONS FROM THE INFORMATION SHOWN ON CONSTRUCTION PLANS.
8. THE PROVISION & MAINTENANCE OF HAUL ROADS, HAUL ROAD STONE, TEMPORARY HAUL SLABS & STEEL PLATES SHALL BE CONSIDERED INCIDENTAL TO PROJECT.
9. CONTRACTOR SHALL PROVIDE STONE FOR CONSTRUCTION ENTRANCE PAD & PERFORM MAINTENANCE AS NECESSARY OR AS REQUIRED BY THE ENGINEER.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, IDENTIFICATION, & PROTECTION OF ALL EXISTING UTILITIES IN CONSTRUCTION AREA. ANY DAMAGES TO EXISTING UTILITIES, PIPELINES ON OR OFF AIRPORT PROPERTY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO REIMBURSEMENT WILL BE ALLOWED FOR UTILITY PIPELINE LOCATION, REPAIR, OR REPLACEMENT.
11. ALL PAVEMENT SHALL BE KEPT FREE OF ALL DEBRIS, DIRT, ETC. AT ALL TIMES. ANY SPILLAGE OF EXCAVATION OR OTHER MATERIALS SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR WITH A MOTOR DRIVEN SWEEPER. A PROGRAM OF REGULAR INSPECTION WILL BE PLANNED BY THE CONTRACTOR.
12. BURNING OF DEBRIS WILL NOT BE ALLOWED ON AIRPORT PROPERTY.
13. CONSTRUCTION STAKE-OUT SHALL BE PERFORMED BY CONTRACTOR IN ACCORDANCE WITH ARTICLE 50-06 OF THE GENERAL PROVISIONS.
14. NOTICE TO AIRMEN (NOTAM) – THE CONTRACTOR WILL PROVIDE THE NECESSARY INFORMATION ON CONSTRUCTION CONDITIONS TO THE OWNER IN ORDER FOR NOTAMS TO BE ISSUED IN ACCORDANCE WITH ESTABLISHED CRITERIA. THE OWNER SHALL BE GIVEN A NOTICE OF CONDITION CHANGES IN ACCORDANCE WITH THE GUIDELINES PROVIDED IN THE PROJECT MANUAL.

EXISTING CONDITIONS – UNDERGROUND & CONCEALED FACILITIES:

1. FAA CABLES WILL BE LOCATED & MARKED BY FAA PRIOR TO CONSTRUCTION. CONTRACTOR IS TO NOTIFY FAA 14 DAYS IN ADVANCE SO THAT FAA CAN SCHEDULE THE REQUIRED MARKING TO PROTECT CABLES DURING CONSTRUCTION. ANY CABLES DAMAGED DURING CONSTRUCTION WILL BE REPLACED BY CONTRACTOR. CONTRACTOR SHALL PAY ALL COSTS ASSOCIATED WITH THE REPAIR OF DAMAGED CABLES AT NO COST TO OWNER.
2. COLONIAL AND/OR PLANTATION PIPELINE MUST BE CONTACTED ONE (1) WEEK PRIOR TO ANY WORK ((INCLUDING SILT FENCE INSTALLATION) TAKING PLACE INSIDE COLONIAL AND/OR PLANTATION PIPELINE RIGHT-OF-WAY. A REPRESENTATIVE FROM EITHER COMPANY MUST BE ONSITE DURING ANY WORK OPERATIONS INSIDE THEIR RIGHT-OF-WAY. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, IDENTIFICATION & PROTECTION OF ALL EXISTING UTILITIES & PIPELINES IN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING UTILITIES OR PIPELINES (ON OR OFF AIRPORT PROPERTY) DAMAGED BY CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR ALL UTILITY/PIPELINE DAMAGED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
3. CONTRACTOR SHALL MAINTAIN ALL STATIONARY & MOBILE EQUIPMENT AGAINST SPILLS & FLUID LEAKAGE. CONTRACTOR SHALL DIAPER ALL LEAKING EQUIPMENT OPERATED WITHIN 150 FEET OF ANY STREAM, WATER BODY OR WETLAND, UNLESS SUITABLE CONTAINMENT IS PROVIDED TO PREVENT POTENTIAL SPILLS FROM ENTERING ANY STREAM OR WATER BODY.
4. CONTRACTOR SHALL PROTECT EXISTING RUNWAY & TAXIWAY LIGHTING SYSTEMS & APPROACH LIGHTING SYSTEMS.
5. ANY UNPLANNED, UNAPPROVED OR ACCIDENTAL SHUTDOWN OR INTERRUPTION OF SERVICE TO ANY LIGHTING CIRCUIT OR NAVIGATIONAL AID REQUIRES IMMEDIATE NOTIFICATION OF AIRPORT OPERATIONS & ENGINEER BY THE CONTRACTOR. ALL NECESSARY REPAIRS WILL BE AT CONTRACTORS EXPENSE.
6. THE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING & GRADE CONTROL OF ALL ELEMENTS OF THE CONSTRUCTION FOR THE DURATION OF THE PROJECT.
7. CONTRACTOR SHALL FIELD VERIFY EXISTING SOIL CONDITIONS, SOIL STOCKPILE CONDITIONS, SOIL MOISTURE CONTENTS & SOIL TYPES PRIOR TO SUBMITTING A BID FOR THE HAECO FACILITY IMPROVEMENTS.

TEMPORARY MARKINGS, BARRICADES & TRAFFIC CONTROL:

SEE CONSTRUCTION SAFETY AND PHASING PLAN, SHEET C2.

RUNWAY & TAXIWAY SAFETY AREAS (RSA & TSA):

NO WORK IN AN ACTIVE RUNWAY SAFETY AREA IS PERMITTED AND NO PERSONNEL AND/OR EQUIPMENT PULL BACKS TO CLEAR AN ACTIVE RUNWAY SAFETY AREA ARE PERMITTED. CONSTRUCTION ACTIVITY WITHIN THE TAXIWAY SAFETY AREA/OBSTACLE-FREE ZONE IS PERMISSIBLE WHEN THE TAXIWAY IS OPEN TO AIRCRAFT TRAFFIC IF ADEQUATE WINGTIP CLEARANCE EXISTS BETWEEN THE AIRCRAFT AND EQUIPMENT/MATERIAL; EXCAVATION, TRENCHES, OR OTHER CONDITIONS ARE CONSPICUOUSLY MARKED AND LIGHTED; AND LOCAL NOTAMS ARE IN EFFECT FOR THE ACTIVITY (SEE AC 150/5300-13A FOR WINGTIP CLEARANCE REQUIREMENTS.) AIRPORT USERS WILL BE NOTIFIED OF RESTRICTED RUNWAY AND TAXIWAY USAGE VIA NOTAM.

PREVENT PERSONNEL, MATERIAL, AND/OR EQUIPMENT, AS DEFINED IN AC 150/5300-13A, PARAGRAPH-308, FROM PENETRATING THE RUNWAY OBSTACLE FREE ZONE (ROFZ).

COORDINATE CONSTRUCTION ACTIVITY WITH THE AIRPORT MANAGER THROUGH THE RPR.

SURVEY NOTES:

1. THE FOLLOWING INFORMATION WAS USED FOR THE EXISTING SURVEY:
   COORDINATE SYSTEM: NORTH CAROLINA STATE PLANE INTERNATIONAL FOOT
   PROJECT HORIZONTAL DATUM: NAD 83/2011
   VERTICAL DATUM: NAVD 88
   COORDINATE UNITS: US SURVEY FEET
   VERTICAL UNITS: US SURVEY FEET
2. DESIGN AND GRADING BASED ON FIELD SURVEY THAT WAS COMPLETED ON 9-23-15 BY ANDERSON & ASSOCIATES, INC.
3. SEE SHEET C2 FOR BENCHMARK INFORMATION.

CONSTRUCTION SEQUENCE NOTES:

THE FOLLOWING CONSTRUCTION SEQUENCE DEFINES THE MINIMAL ORDER OF CONSTRUCTION STEPS THAT NEED TO OCCUR TO REROUTE STORMWATER FLOWS FROM THE EXISTING PERMANENTLY IMPACTED STREAM TO A PERMANENT CLOSED STORM SEWER SYSTEM. IN ADDITION, THESE CONSTRUCTION STEPS WILL MOVE THE SITE TOWARDS DIVERTING SURFACE FLOWS TO A PROPOSED INFILTRATION POND. SEE THE SITE PLAN SHEETS AND THE STORM PROFILE SHEETS FOR PLAN AND PROFILE OF THE REFERENCED STORM SEWER LINES IN THIS SEQUENCE.

1. MOBILIZE ONSITE AND ESTABLISH LIMITS OF CONSTRUCTION AND EROSION AND SEDIMENT CONTROLS PER THE EROSION AND SEDIMENT CONTROL PLAN SHEETS (EROSION CONTROL PLANS TO BE COMPLETED AT A LATER DATE AND PERMIT REVIEW COORDINATED WITH NCDENR).
2. ONCE THE ABOVE ITEMS ARE INSTALLED, THE CONTRACTOR MAY PROCEED WITH DEMOLITION AND CLEARING & GRUBBING OPERATIONS PER THE PLANS.
3. EXISTING POND A LOCATED ON THE EASTERNMOST PORTION OF THE SITE MUST BE DRAINED ENTIRELY.
4. IN ORDER TO BYPASS THE PERMANENTLY IMPACTED STREAM, THE STORM SEWER LINE 1-3-4-5-9 (SHEET C4 & C5) MUST FIRST BE INSTALLED. THE MAJORITY OF THIS LINE CAN BE TRENCHED INTO THE EXISTING GRADES. LINE 5-9 MUST HAVE A PORTION BACKFILLED TO A MINIMUM OF 3 FEET OF COVER OF THE PIPE TO PROTECT IT DURING FURTHER FILL OPERATIONS. REGRADING OF THE AREA UPSTREAM OF STRUCTURE 9 (SHEET C4) MUST ALSO OCCUR AT THIS STEP TO REROUTE STORMWATER FROM THE FIVE EXISTING STORM SEWER OUTFALLS INTO THE PROPOSED HEADWALL STRUCTURE 9.
5. ONCE THE LINE IN THE PREVIOUS STEP IS INSTALLED, THEN STORM SEWER LINE 4-24-25 (SHEET C5) MUST BE INSTALLED TO BYPASS EXISTING STORMWATER FROM THE NORTH OF THE PROPOSED SITE.
6. STORM SEWER LINE 1-28-2 (SHEET C5) CAN ALSO BE INSTALLED DURING THESE INITIAL STEPS OF STORM SEWER INSTALLATION (TO PREVENT THE NEED FOR DEEP TRENCHING IN LATER STEPS).
7. FILL OPERATIONS SHOULD THEN BEGIN AT STRUCTURE 9 AND PROCEED TO APPROX. 20' BEYOND STORM SEWER LINE 5-10 (SHEET C5). THE FILL OPERATIONS SHOULD STOP AT ELEVATION 860.00 IN THIS AREA.
8. STORM SEWER LINE 5-10-33-11 (SHEET C5) MUST BE INSTALLED TO CAPTURE STORMWATER FROM THE EXISTING APRON TO THE SOUTHWEST OF THE PROPOSED SITE.
9. STORM SEWER LINE 33-34-35-36 (SHEET C5) MUST THEN BE INSTALLED TO CAPTURE THE EXISTING FLOOR DRAIN SYSTEM FROM THE EXISTING HANGAR BUILDING LOCATED TO THE SOUTH OF THE PROPOSED SITE.
10. ONCE THE BYPASS LINES IN THE PREVIOUS TWO STEPS ARE INSTALLED, THE EXISTING STORMWATER POND B CAN BE DRAINED AND REMOVED.
11. FILL OPERATIONS SHOULD THEN CONTINUE FROM STORM LINE 5-10 OUT TO RADAR ROAD AT ELEVATION 860.00.
12. ONCE THE 860.00 ELEVATION PAD IS SET, THE CONTRACTOR CAN INSTALL STORM SEWER LINES 17-18, 28-29, AND 3-27 (TO PREVENT THE NEED FOR DEEP TRENCHING IN LATER STEPS).
13. FILL OPERATIONS MAY THEN PROCEED TO FINAL SUBGRADE LEVEL ACROSS THE ENTIRE SITE.
14. ONCE THE FINAL SUBGRADE PAD LEVEL IS ESTABLISHED, THE FOLLOWING STORM SEWER LINES SHALL BE INSTALLED:
    - 18-19-20-21-22 (SHEET C5)
    - 1-30-31-32 (SHEET C5)
    - 3-20 (SHEET C5)
    - 18-5 (SHEET C5)
    - 35-38 (SHEET C5)
    - 34-37 (SHEET C5)
    - 5-16 (SHEET C4 & C5)
    - 5-6-7-8 (SHEET C4 & C5)
    - 6-12-13-14 (SHEET C4)
    - 12-15 (SHEET C4)
    - 26-25 (SHEET C5)
15. ONCE ALL OUTFALL STRUCTURES HAVE BEEN ESTABLISHED IN THE PROPOSED POND AND ALL UPSTREAM AREAS HAVE BEEN STABILIZED, THE INFILTRATION MEDIA AND UNDERDRAIN SYSTEM CAN BE INSTALLED IN THE PROPOSED INFILTRATION POND.

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL MAINTAIN ALL SEDIMENT AND EROSION CONTROL DEVICES THROUGHOUT THE LIFE OF THE PROJECT, AND PROVIDE PERIODIC CLEANOUT AS NECESSARY. THE CONTRACTOR SHALL INSPECT ALL DEVICES EVERY SEVEN (7) CALENDAR DAYS OR AFTER EACH RAINFALL EVENT THAT EXCEEDS 1/2 INCH (0.5"). SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCES WHEN IT BECOMES ABOUT 1/2 FOOT (0.5') DEEP AT THE FENCE. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
2. CONTRACTOR SHALL LIMIT AREAS OF DISTURBANCE AS MUCH AS POSSIBLE DURING THE COURSE OF THE PROJECT, AND STABILIZE AREAS AS WORK IS COMPLETED. NO SEPARATE MEASUREMENT WILL BE MADE FOR PAYMENT FOR AREAS REQUIRING SEEDING AND MULCHING OUTSIDE OF THE LIMITS OF CONSTRUCTION.
3. ALL AREAS DISTURBED DURING CONSTRUCTION NOT SHOWN TO BE PAVED SHALL BE PERMANENTLY SEEDED AND MULCHED.
4. TEMPORARY GROUND COVER SHALL BE PLACED ON EXPOSED SLOPES WITHIN 14 CALENDAR DAYS PER THE TEMPORARY SEEDING SPECIFICATIONS AND THE GROUND COVER SCHEDULE SHOWN IN DETAIL 1/C11.
5. TEMPORARY GROUND COVER SHALL BE PLACED ON EXPOSED SWALES OR DITCHES WITHIN 7 CALENDAR DAYS PER THE TEMPORARY SEEDING SPECIFICATIONS AND THE GROUND COVER SCHEDULE SHOWN IN DETAIL 1/C11.
6. THE TEMPORARY SEEDING SCHEDULE SHOWN IN DETAIL 1/C11 SHALL BE USED FOR TEMPORARY GROUNDCOVER CONDITIONS WHERE NEEDED. ONCE FINAL GRADES AND STABILIZATION OF AN AREA ARE ESTABLISHED, THE PERMANENT SEEDING MIXTURE SHOWN ON DETAIL 1/C11 SHALL BE APPLIED.
7. TOTAL DISTURBED AREA FOR THIS PROJECT: 22.0 ACRES
8. THE OFFSITE LOCATION WHERE BORROW MATERIAL IS TAKEN FROM MUST HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PERMIT ON FILE WITH NCDENR.

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1ST, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH THE NPDES GROUNDCOVER TIMETABLE. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM HTTP://PORTAL.NCDENR.ORG/WEB/LR/EROSION. IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THE WINSTON-SALEM REGIONAL OFFICE AT 336-776-9800.

- DRAWING STATUS - FOR PERMITTING ONLY - DO NOT USE FOR CONSTRUCTION

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WKD PROJ.: 20150125.00.RA
PROJ. ORIGIN DATE: NOV. 2015
P.M.: PDS
DRAWN BY: KCB/MRM

PROFESSIONAL SEAL

REV. RECORD:

BY	DATE	DESCRIPTION

PROJECT NAME:
HAECO FACILITY IMPROVEMENTS

OWNER OR CLIENT:
PIEDMONT TRIAD INTERNATIONAL AIRPORT (PTI)

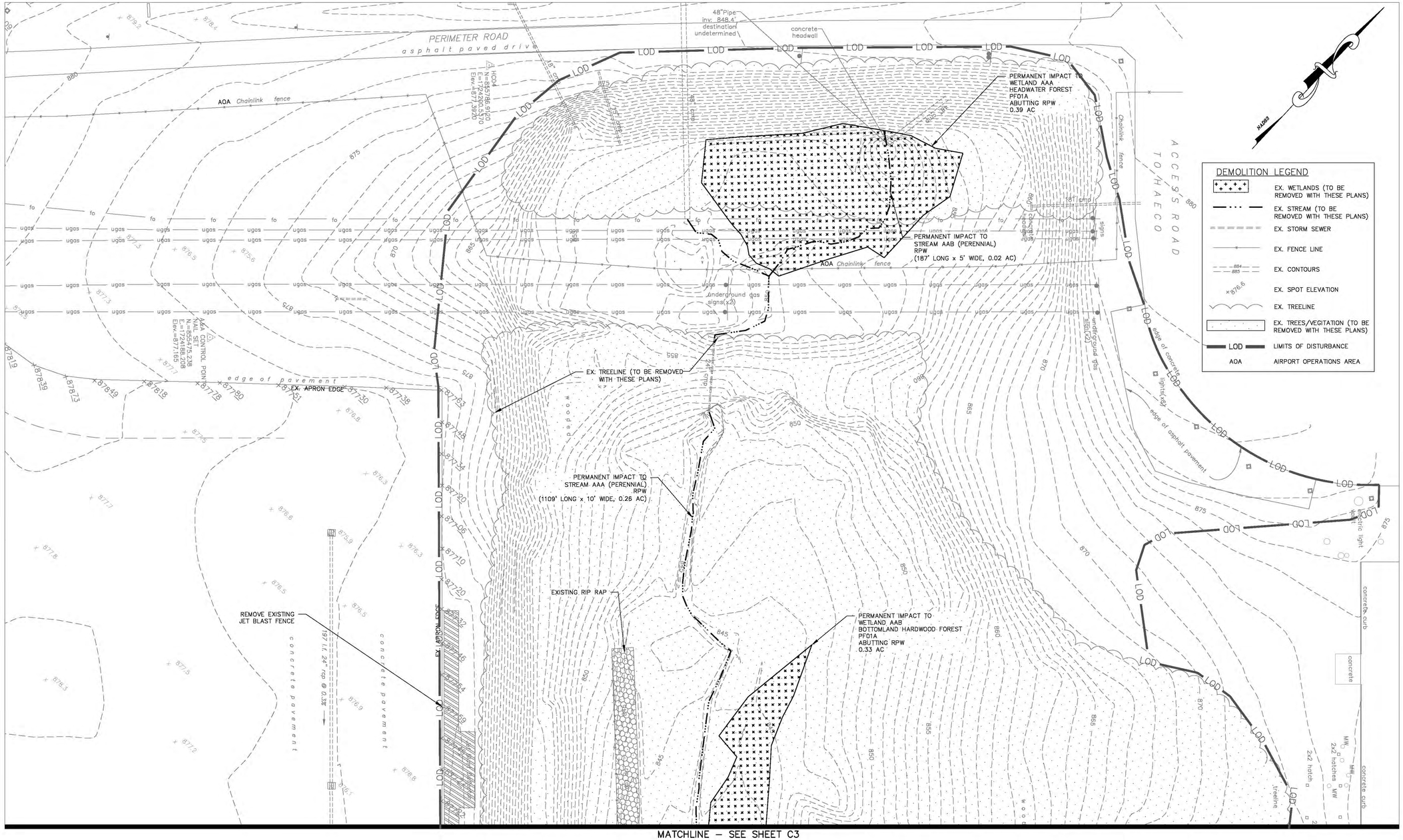
PLAN KEY:

DRAWING TITLE:
GENERAL NOTES & CONSTRUCTION SEQUENCING

DRAWING NUMBER:
C1

PLOT DATE: 11/13/2015

FILE PATH: J:\Projects\Piedmont Triad Airport Authority\2015012500RA - Aviation Tenant Site Development (Haeco)\CADD\WKD Plan Set\20150125_C_SHT_Notes.dwg



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PROFESSIONAL SEAL

REV. RECORD:

BY	DATE	DESCRIPTION

PROJECT NAME:
HAECO FACILITY IMPROVEMENTS

OWNER OR CLIENT:
PIEDMONT TRIAD INTERNATIONAL AIRPORT (PTI)

PLAN KEY:

DRAWING TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWING NUMBER:
C2

PLOT DATE: 11/13/2015

FILE PATH: J:\Projects\Piedmont Triad Airport Authority\2015012500RA - Aviation Tenant Site Development (Haeco)\CADD\WKD Plan Set\20150125_C_SHT_EX & DEMO.dwg

MATCHLINE – SEE SHEET C2

EX. APRON EDGE

REMOVE EXISTING PIPE SYSTEM
SEE CONSTRUCTION SEQUENCE ON
SHEET C1

EX. HANGAR

EXISTING HANGAR #2

EX. STORMWATER POND B
WE: 842.1'
(TO BE REMOVED WITH THESE PLANS)
SEE CONSTRUCTION SEQUENCE ON SHEET C1

APPROXIMATE LOCATION OF
EXISTING HANGAR DRAIN TO BE
RE-ROUTED. SEE CONSTRUCTION
SEQUENCE ON SHEET C1

PERMANENT IMPACT TO
STREAM AAA (PERENNIAL)
RPW
(1109' LONG x 10' WIDE, 0.26 AC)

PERMANENT IMPACT TO
WETLAND AAB
BOTTOMLAND HARDWOOD FOREST
PF01A
ABUTTING RPW
0.33 AC

PERMANENT IMPACT TO
STREAM AAC (PERENNIAL)
RPW
(305' LONG x 5' WIDE, 0.04 AC)

REMOVE EXISTING POND RISER AND
OUTLET PIPE PER CONSTRUCTION
SEQUENCE ON SHEET C1

A&A CONTROL POINT
NAIL SET
N=855493.102
E=1724876.116
Elev=848.39

EX. TREELINE (TO BE REMOVED
WITH THESE PLANS)

EX. STORMWATER POND A
WE: 848.6'
(TO BE REMOVED WITH THESE PLANS)
SEE CONSTRUCTION SEQUENCE ON SHEET C1

PERMANENT IMPACT TO
WETLAND AAC
SEEP
PF01B
ABUTTING RPW
0.09 AC

REMOVE EXISTING POND RISER AND
OUTLET PIPE PER CONSTRUCTION
SEQUENCE ON SHEET C1

RADAR ROAD
asphalt paved drive

1 inch = 30 ft.

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PROJ. ORIGIN DATE: NOV. 2015
P.M.: PDS
DRAWN BY: KCB/MRM

PROFESSIONAL SEAL

REV. RECORD:

BY	DATE	DESCRIPTION

PROJECT NAME:
HAECO
FACILITY
IMPROVEMENTS

OWNER OR CLIENT:
PIEDMONT TRIAD
INTERNATIONAL
AIRPORT (PTI)

PLAN KEY:

DRAWING TITLE:
EXISTING CONDITIONS
& DEMOLITION PLAN

DRAWING NUMBER:
C3

PLOT DATE: 11/13/2015

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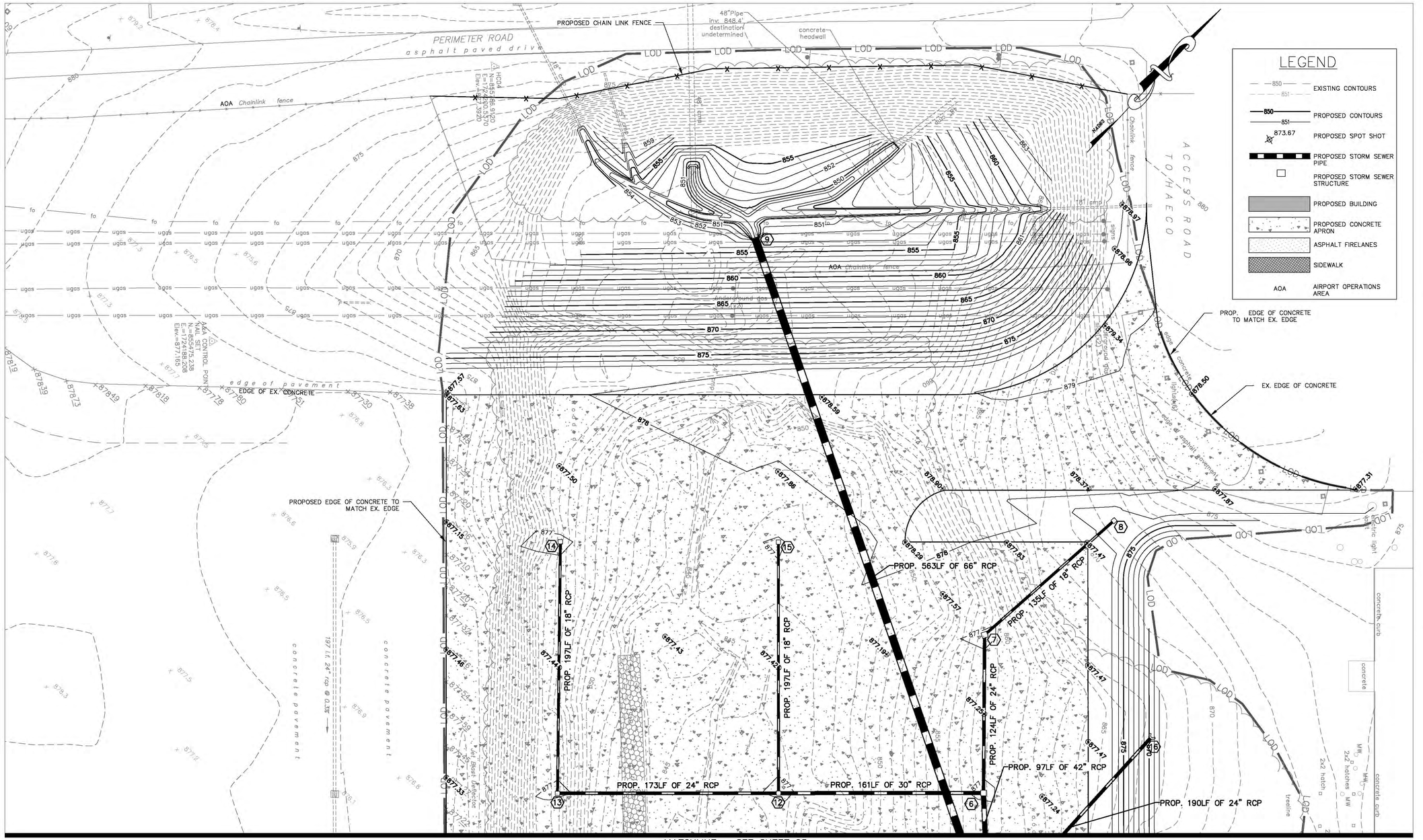

MATCHLINE – SEE SHEET C5

1 inch = 40 ft.

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PLAN KEY:

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DRAWING NUMBER:
C4

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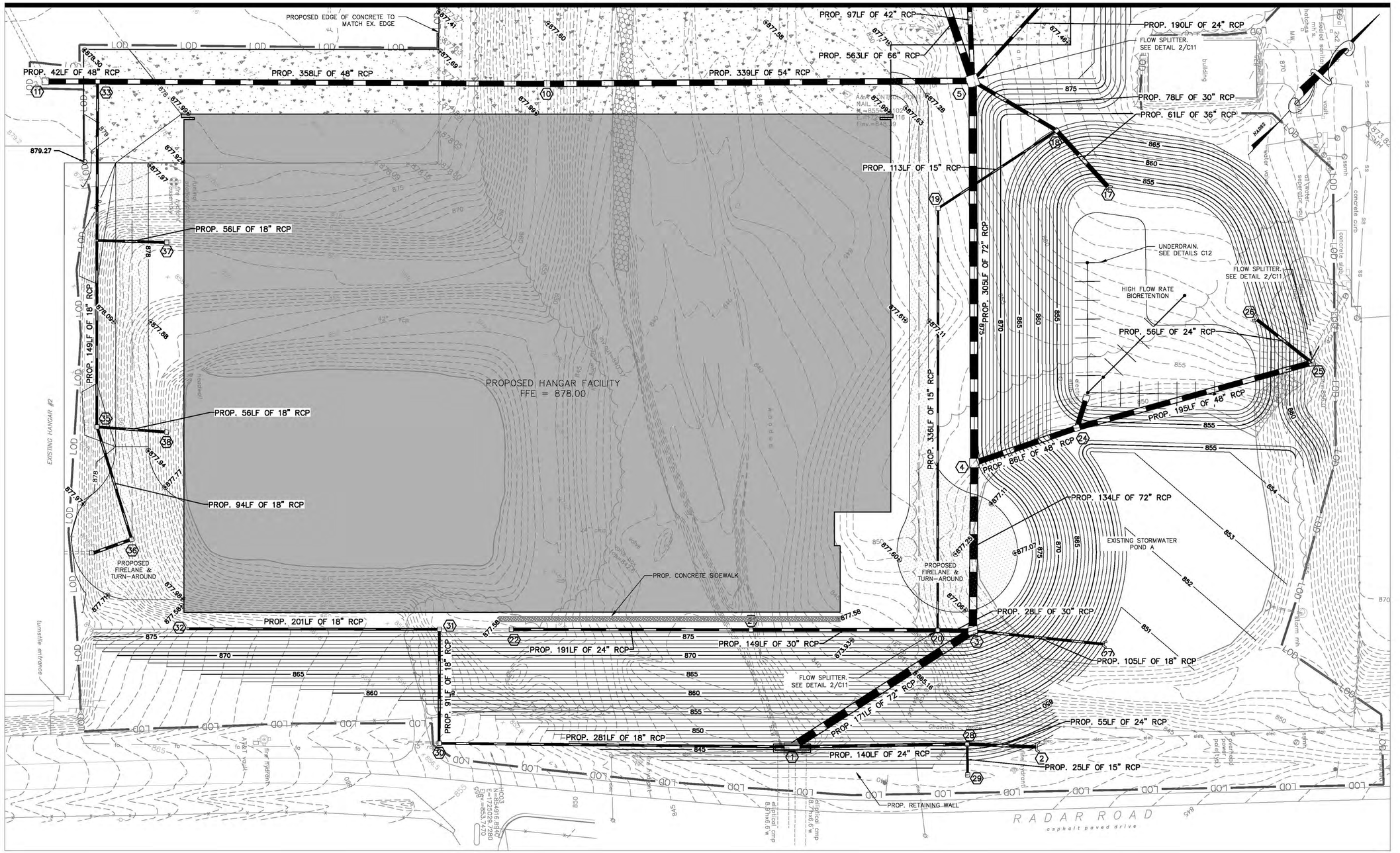

A | B | C

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C5

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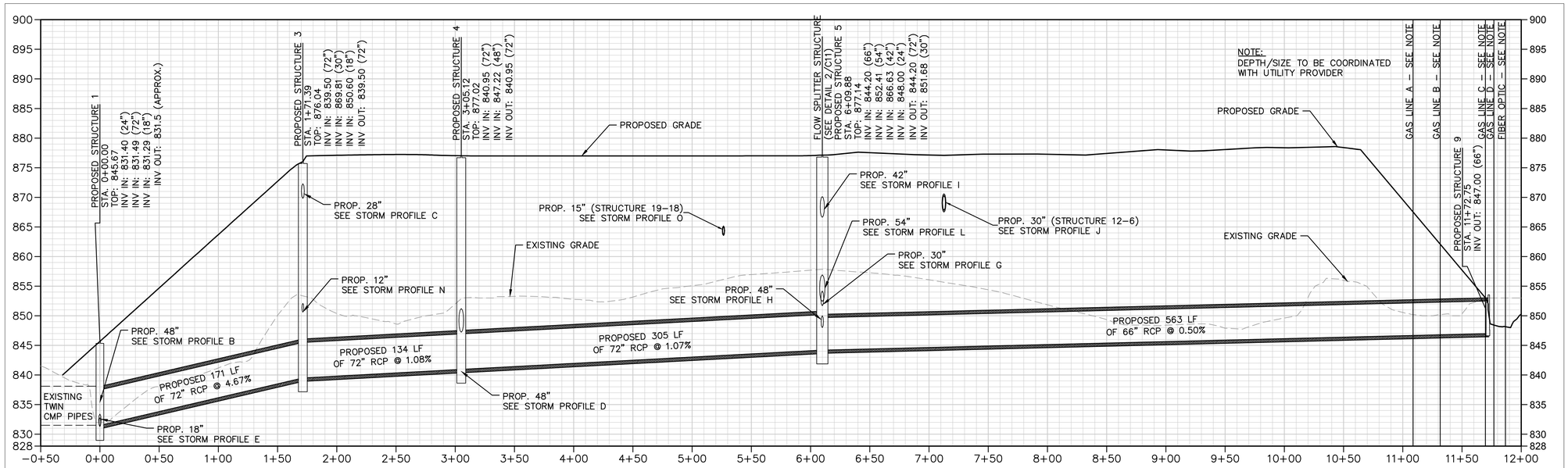
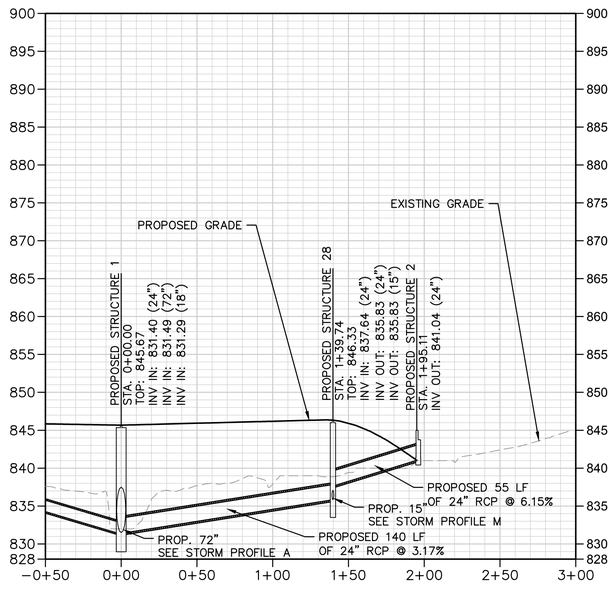
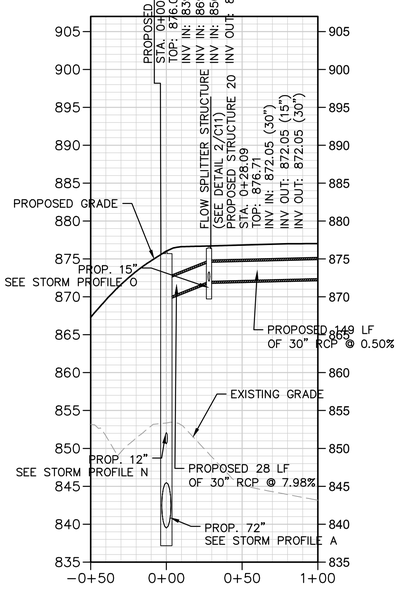


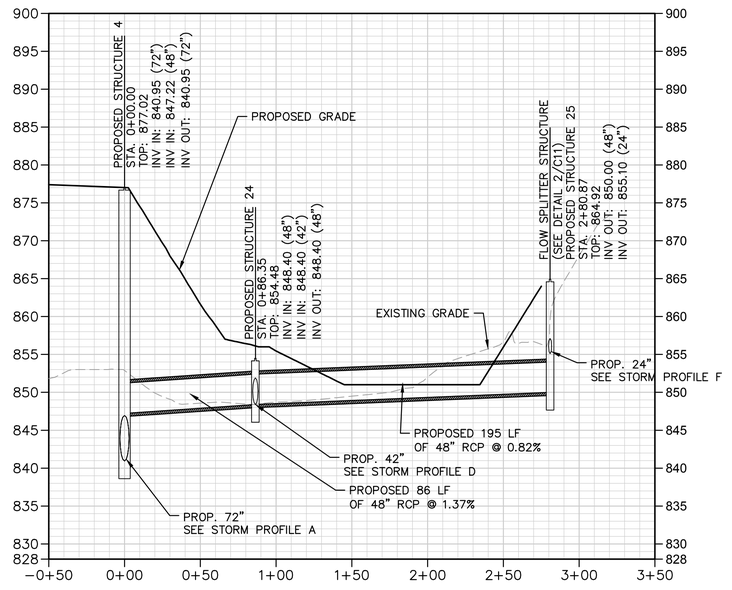
STORM PROFILE A



STORM PROFILE B



STORM PROFILE C



STORM PROFILE D

1 inch = 50 ft. HORIZONTAL

1 inch = 10 ft. VERTICAL

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DRAWING NUMBER:
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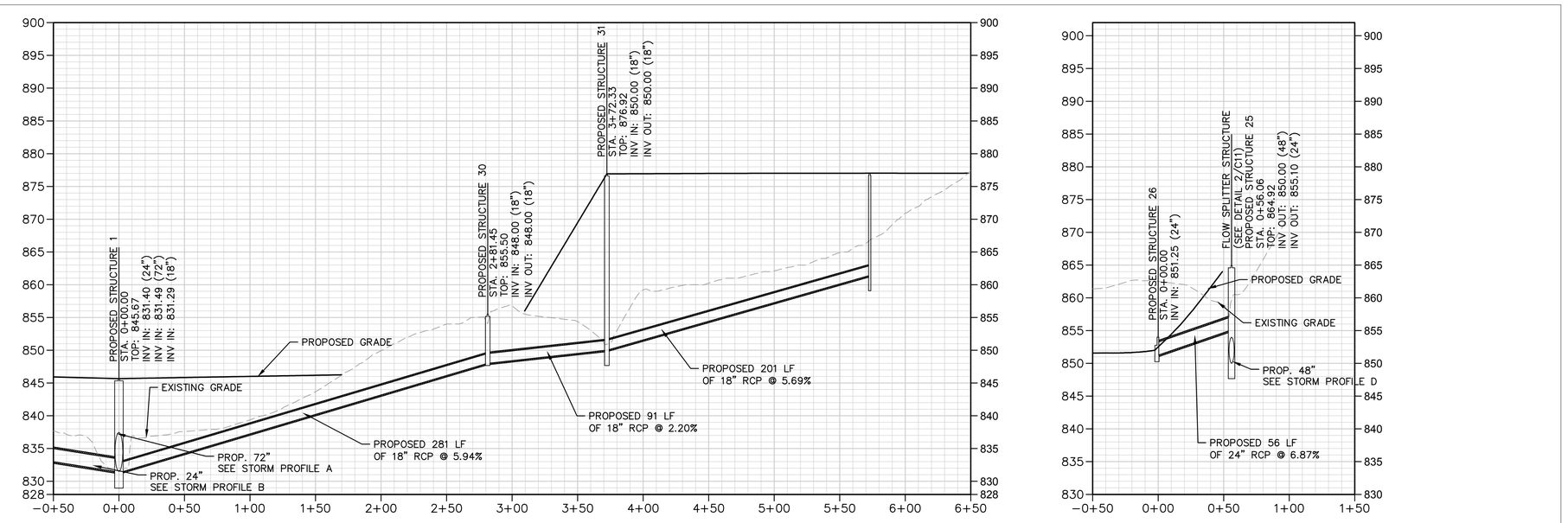
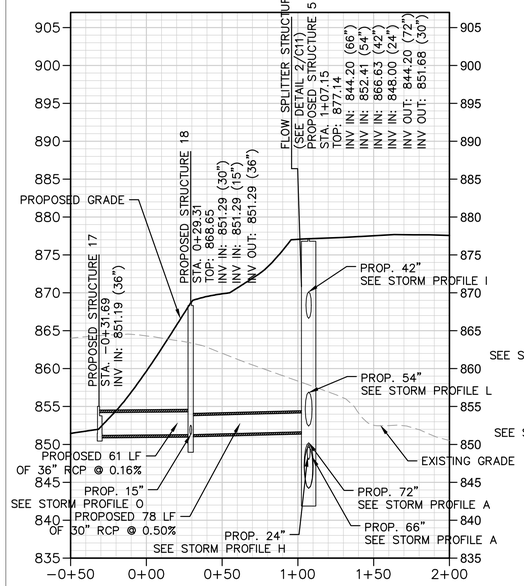
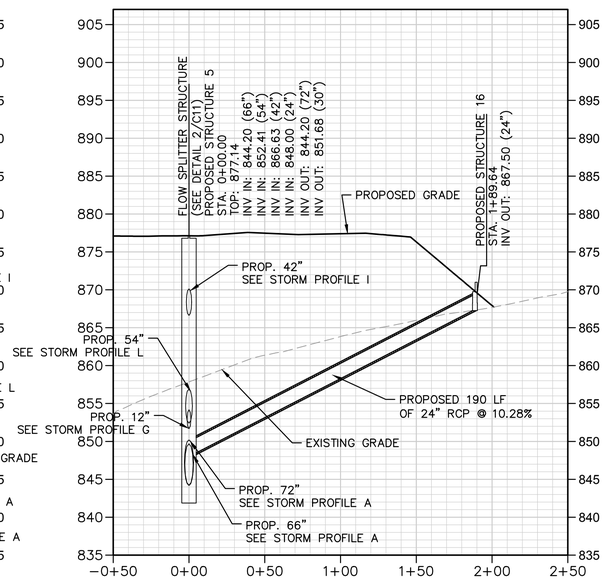


STORM PROFILE E

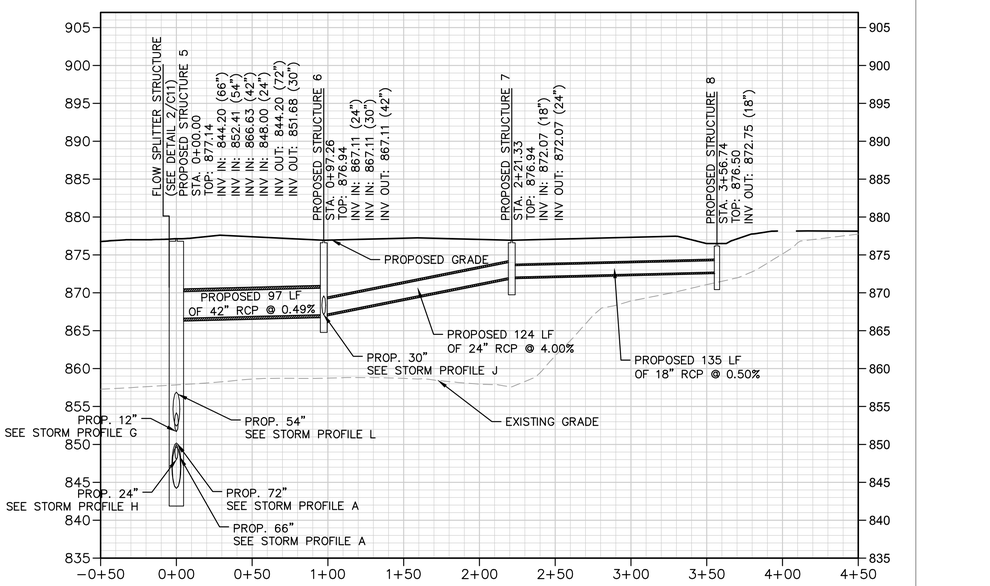
STORM PROFILE F



STORM PROFILE G



STORM PROFILE H



STORM PROFILE I

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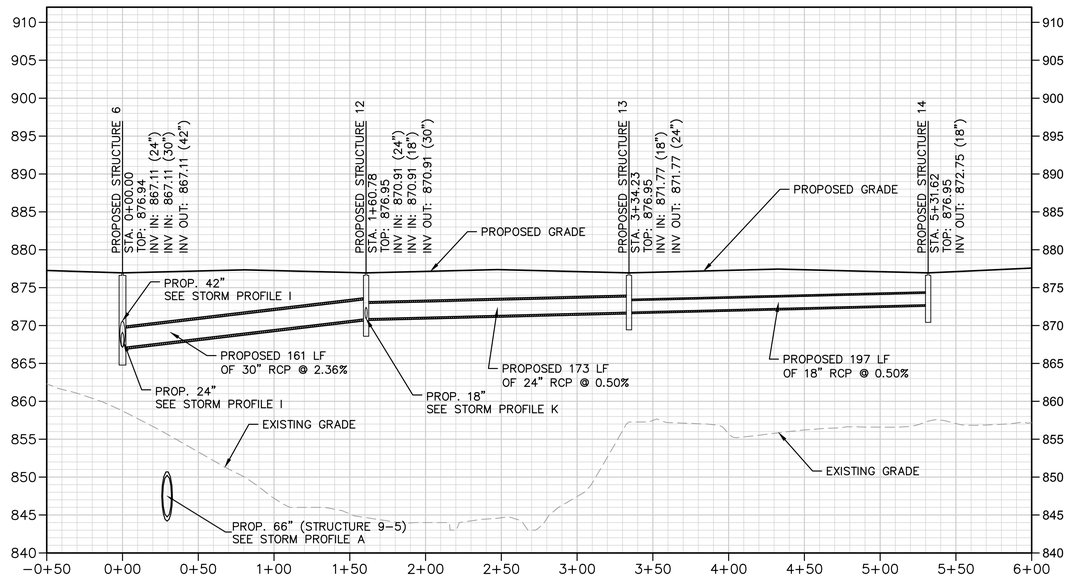
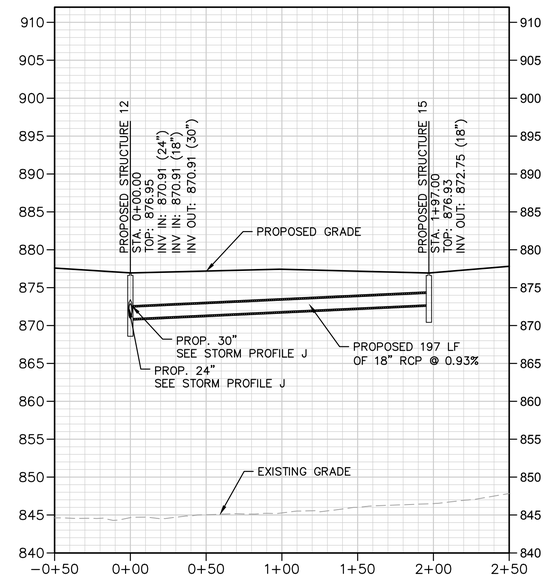


STORM PROFILE J



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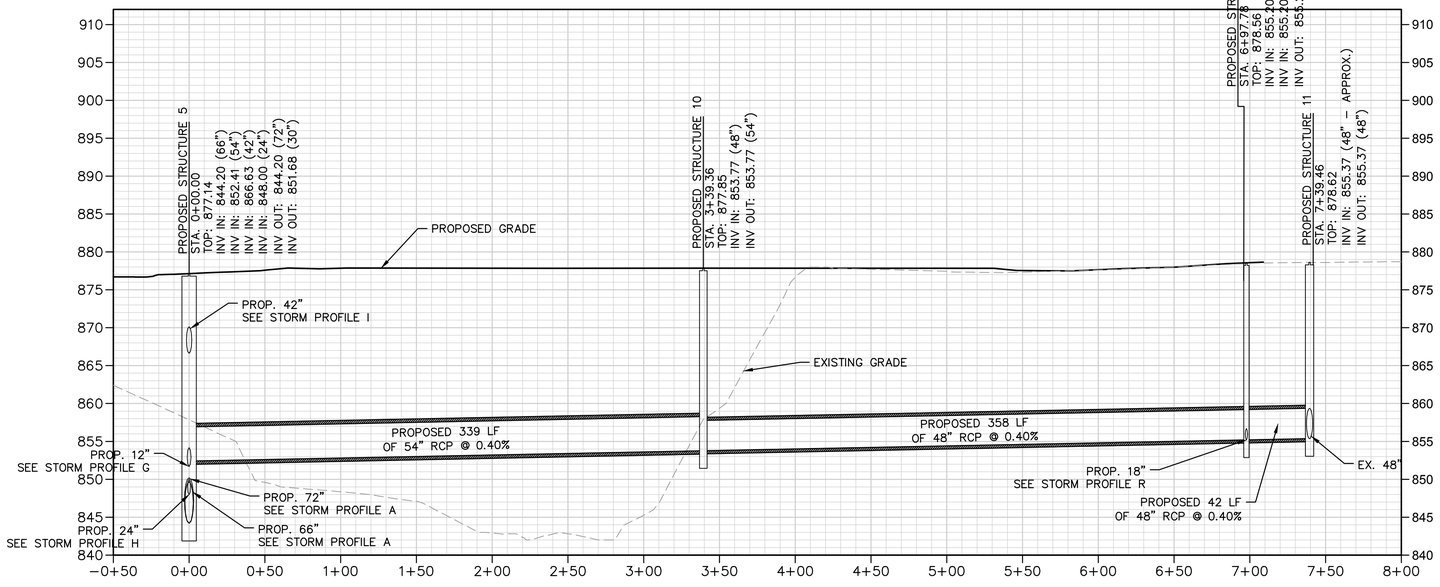
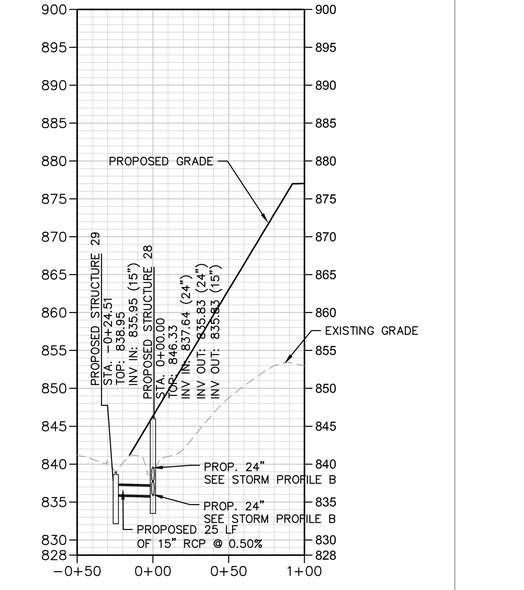


STORM PROFILE L



STORM PROFILE M

1 inch = 50 ft. HORIZONTAL

1 inch = 10 ft. VERTICAL

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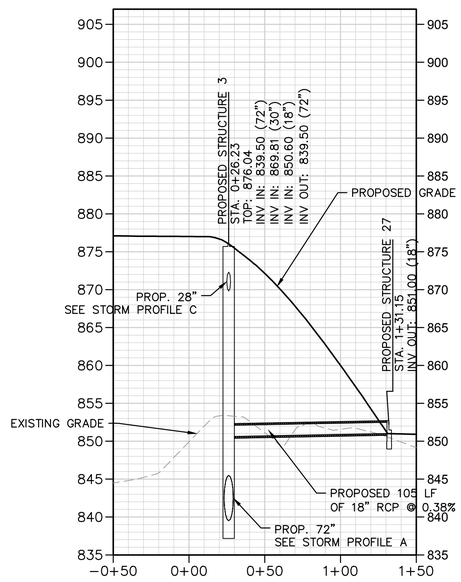
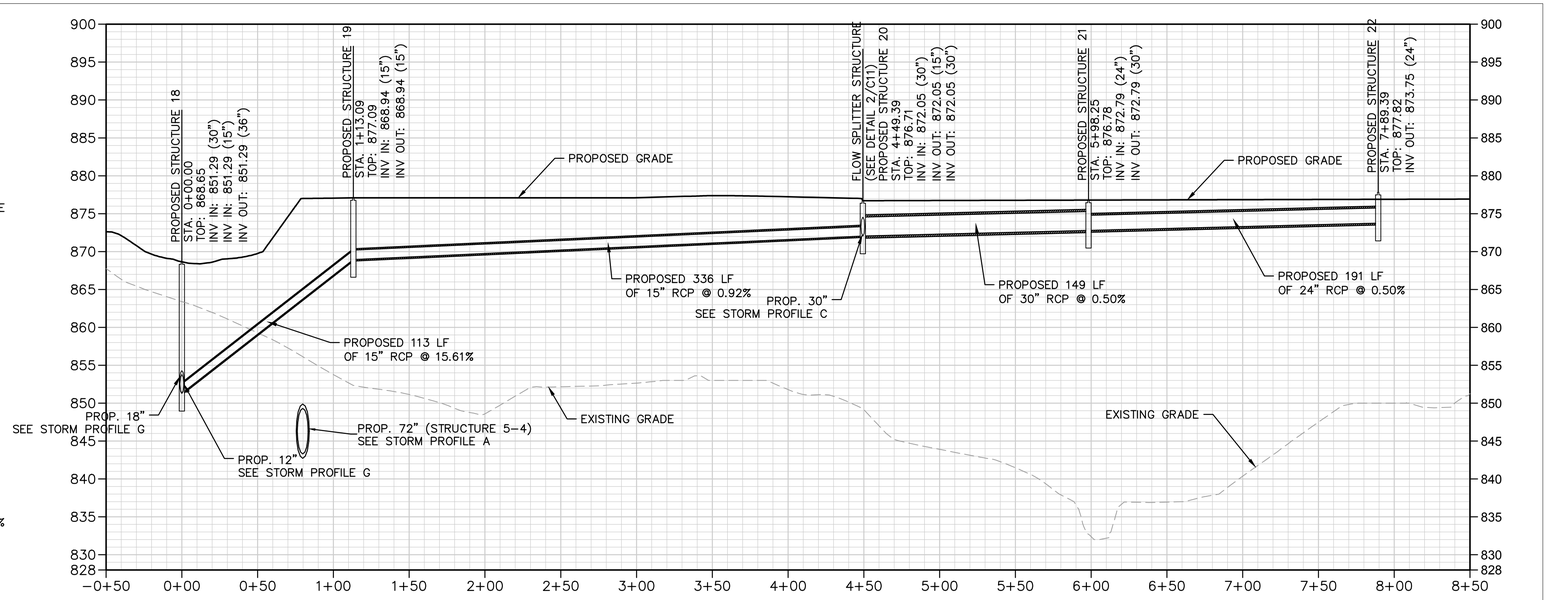
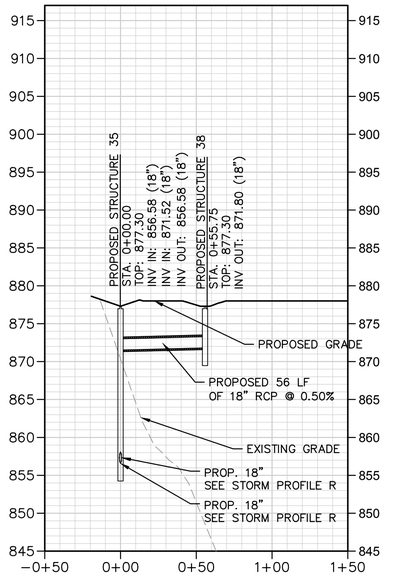


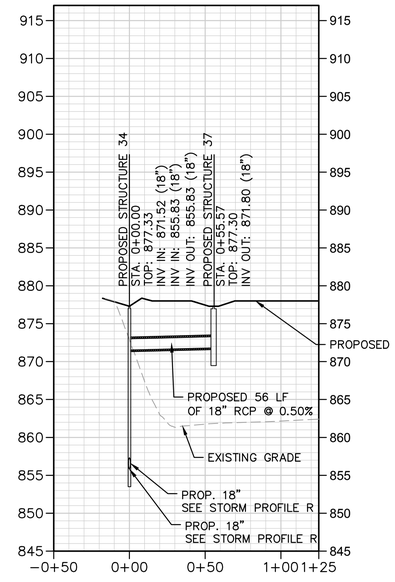
STORM PROFILE N



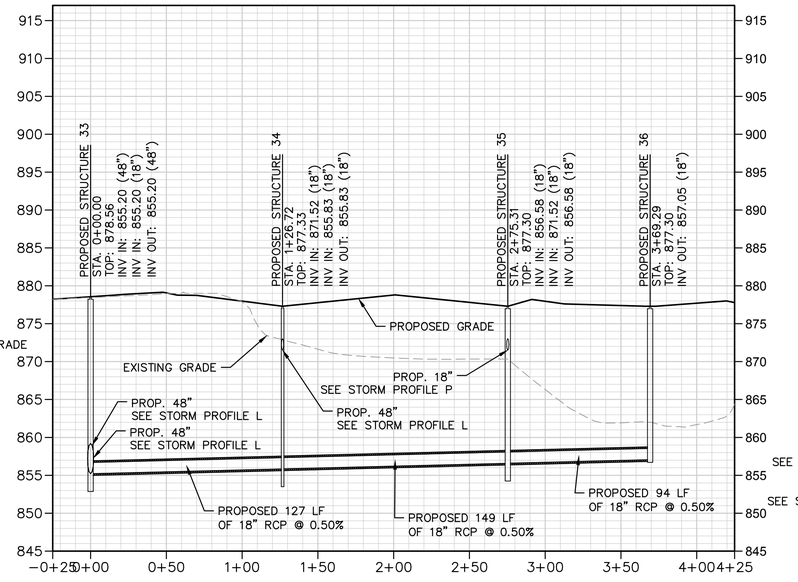
STORM PROFILE O



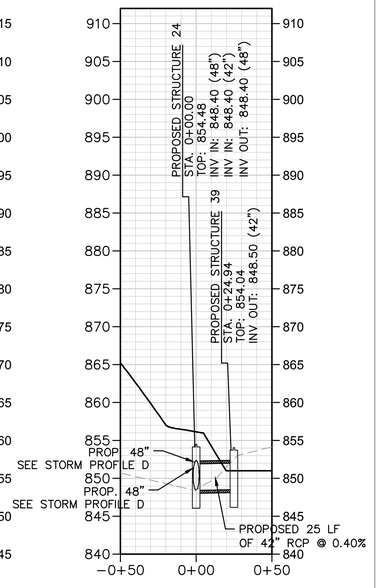
STORM PROFILE P



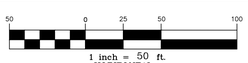
STORM PROFILE Q

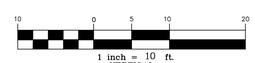


STORM PROFILE R



STROM PROFILE S





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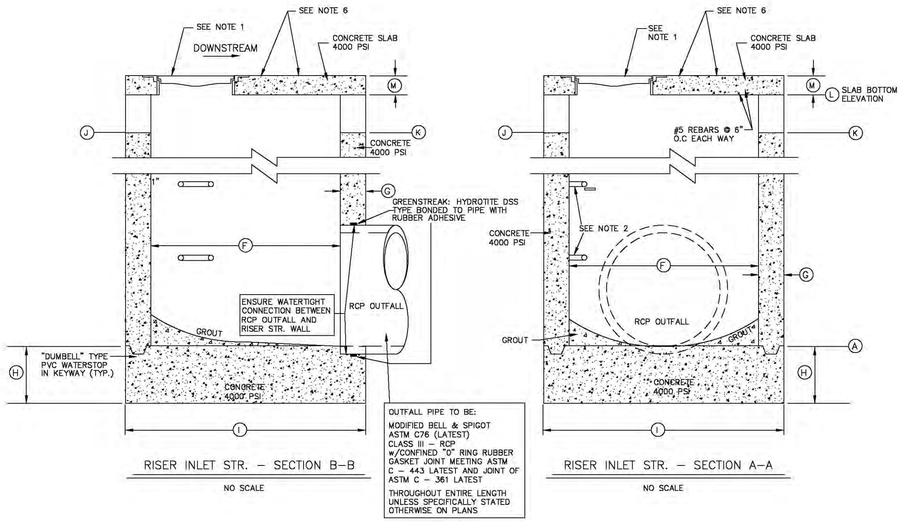


RISER INLET STR. – SECTION B–B

NO SCALE

RISER INLET STR. – SECTION A–A

NO SCALE

POURED IN PLACE

DO NOT LESSEN DIMENSIONS

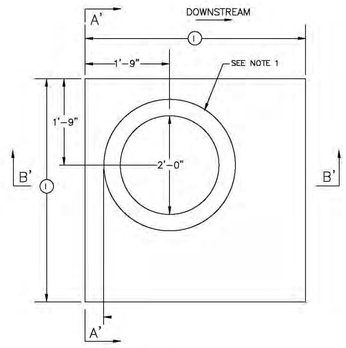
THIS STRUCTURE SUBJECT TO FLOTATION FORCES

DIMENSION	DIMENSION VALUE
A	848.50' MSL
B	N/A
C	N/A
D: Orifice Ctr EL.	N/A*
E: Orifice Inv. EL.	N/A*
F	4' – 8"
G	8 inches
H	1.25'
I	6' – 0"
J: Weir Wall (1)	853.30' MSL
K: Overflow (3)	853.30' MSL
L	854.80' MSL
M	9 inches
TOTAL WEIR LENGTH @ ELEV. 853.30	18'

* NO ORIFICE PIPE IN THIS STRUCTURE

NOTES:

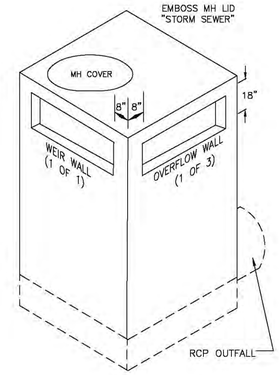
1. DEWEY BROS. FLUSH MOUNT MH COVER MH–RCR–15 & MH RING MH–RCR–15.
2. DEWEY BROS. MANHOLE STEPS MH–ST–5 @ 15" O.C. 1ST STEP IS 2'–0" FROM TOP.



CONCRETE RISER COVER

PLAN VIEW

NO SCALE



ISOMETRIC VIEW

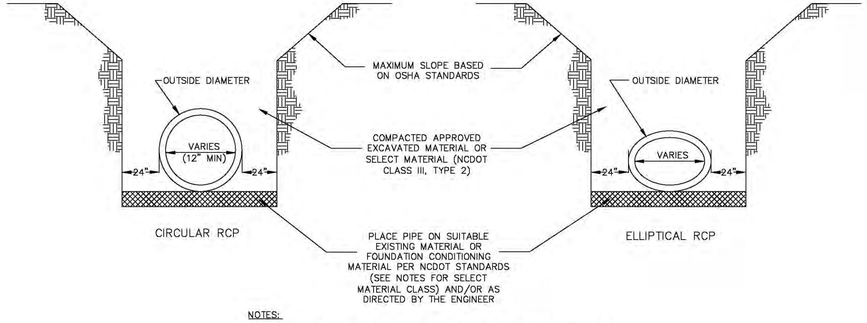
NO SCALE

NOTES:

5. SHOWN WITH DEWEY BROS. FLUSH MOUNT MH COVER MH–RCR–15, FOR USE WITH ALL YARD INLETS.
6. COVER TO BE 4000 PSI CONCRETE WITH # 5 REBAR @ 6" O.C EACH WAY.
7. SEE ADJACENT STANDARD DETAIL FOR SECTIONS A–A AND B–B.
8. THOROUGHLY TAMP FOUNDATION SOILS PRIOR TO BASE SLAB INSTALLATION.

1/C10 PRIMARY SPILLWAY RISER DETAIL

NTS



CIRCULAR RCP

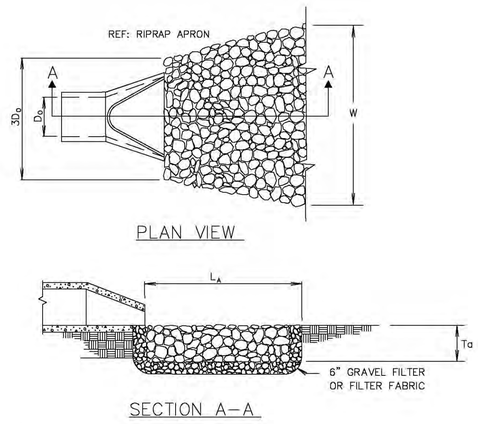
ELLIPTICAL RCP

NOTES:

1. A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6". UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
2. ALL BACKFILL MATERIAL SHALL HAVE AN IN PLACE COMPACTED DENSITY OF 95% STANDARD PROCTOR. THE FINAL 2' BELOW FINISHED GRADE SHALL BE 100% STANDARD PROCTOR.
3. ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
4. ALL BACKFILL MATERIAL BENEATH ROADWAY SHALL BE SELECT MATERIAL (NCDOT CLASS III, TYPE 2). EXCAVATED MATERIAL THAT MEETS OR EXCEEDS THAT STANDARD SHALL BE USED WHERE AVAILABLE. IN AREAS OUTSIDE THE ROADWAY, BACKFILL SHALL CONSIST OF EXCAVATED MATERIAL.
5. STORM DRAIN PIPES OUTSIDE OF STREET R/W USE SELECT MATERIAL CLASS III. STORM DRAIN PIPES INSIDE OF STREET R/W USE SELECT MATERIAL CLASS VI.

2/C10 PIPE BEDDING/TRENCHING DETAIL

NTS



NOTES:

1. L_A IS LENGTH OF RIPRAP APRON. THE APRON SHALL EXTEND TO TOE OF SLOPE.
2. THE DOWNSTREAM WIDTH (W) OF THE APRON IS EQUAL TO Do+La (MINIMUM TAILWATER)
3. A FILTER BLANKET OR FILTER FABRIC SHALL BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
4. IN A WELL DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION 6" ABOVE MAXIMUM TAILWATER DEPTH OR TO TOP OF BANK, WHICHEVER IS LESS.
5. DIMENSIONS AS REQUIRED BY ENGINEER, OR AS TABULATED BELOW.
6. Ta = 1.5 x MAX. STONE DIA.; MAX. STONE DIA. = 1.5 X d(50).

3/C10 RIP–RAP PAD DETAIL

NTS

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SEEDING, MULCHING, AND TOPSOIL NOTES:

1. ALL SOIL STABILIZATION MEASURES SHALL MEET THE REQUIREMENTS OF ITEMS T– 901, T–905, AND T–908 OF THE SPECIFICATIONS. GROUNDCOVER SHALL BE ESTABLISHED.
2. PRIOR TO SOIL STABILIZATION, AREAS SHALL BE CLEARED OF STONES OR DEBRIS LARGER THAN 2 INCHES IN DIAMETER.
3. AREA TO BE SEEDED SHALL BE THOROUGHLY LOOSENED TO A DEPTH OF 5 INCHES. THE TOP 3 INCHES SHALL BE WORKED INTO A SATISFACTORY SEEDBED BY DISCING, OR BY USE OF CULTIPACKERS, ROLLERS, DRAGS, OR OTHER APPROPRIATE MEANS.
4. THE KINDS OF SEED AND THE RATES OF APPLICATION OF SEED SHALL BE AS STATED BELOW. ALL RATES ARE IN POUNDS PER ACRE.

   ALL AREAS EXCEPT STORMWATER MANAGEMENT PONDS:

   PERMANENT SEEDING:
   100# TALL FESCUE
   10# KOBE LESPEDEZA
   25# BAHIA GRASS
   40# RYE GRAIN (JANUARY TO FEBRUARY APPLICATION)

   TEMPORARY SEEDING:
   TEMPORARY SEEDING FOR THE PROJECT SHALL MEET All REQUIREMENTS PUBLISHED WITHIN THE CURRENT EDITION OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF LAND RESOURCES, LAND QUALITY SECTION'S EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, TABLE 6.10A, TABLE 6.10B AND TABLE 6.10C FOUND ON PAGE 6.10.4, PAGE 6.10.5 AND PAGE 6.10.6.

   NOTE: WHERE NOTED ON PLANS, SERICEA LESPEDEZA SEED SHALL BE ADDED TO THE SPECIFIED SEED MIXTURE AT A RATE OF THIRTY (30) POUNDS PER ACRE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE ADDITION OF SERICEA LESPEDEZA SEED.

STORM WATER MANAGEMENT PONDS PERMANENT SEEDING:

(MAY TO SEPTEMBER APPLICATION:)	(OCTOBER TO APRIL APPLICATION:)
75# TALL FESCUE	120# TALL FESCUE
25# BERMUDA GRASS	15# BERMUDA GRASS
25# BAHIA GRASS	10# BLUE GRASS
	10# HARD FESCUE

THE KINDS OF GRASS, LEGUME, AND COVER–CROP SEED FURNISHED SHALL BE THOSE STIPULATED ABOVE. SEED SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL SPECIFICATION JJJ–S–181.

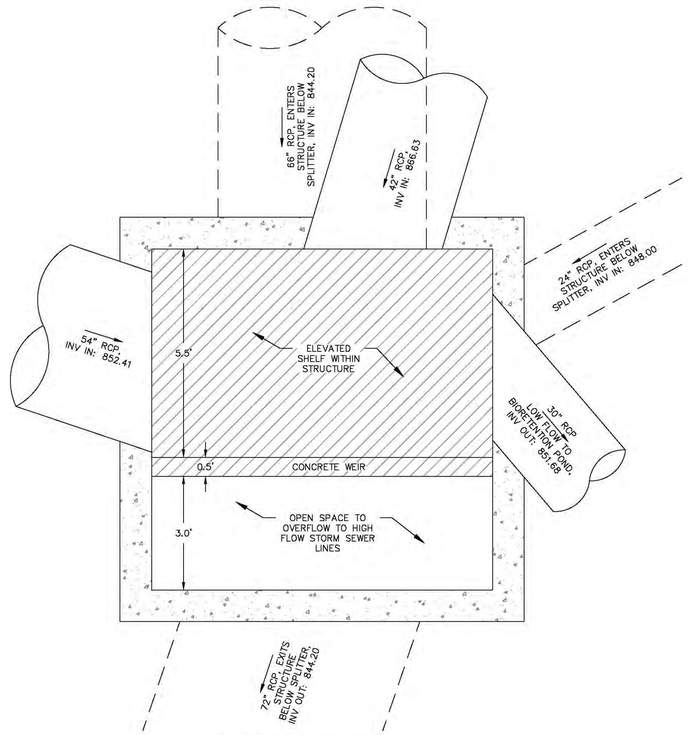
SEED SHALL BE FURNISHED SEPARATELY OR IN MIXTURES IN STANDARD CONTAINERS WITH THE SEED NAME, LOT NUMBER, NET WEIGHT, PERCENTAGES OF PURITY AND OF GERMINATION AND HARD SEED, AND PERCENTAGE OF MAXIMUM WEED SEED CONTENT CLEARLY MARKED FOR EACH KIND OF SEED. THE CONTRACTOR SHALL FURNISH THE ENGINEER DUPLICATE SIGNED COPIES OF A STATEMENT BY THE VENDOR CERTIFYING TESTING WITHIN SIX (6) MONTHS OF DATE OF DELIVERY THIS STATEMENT SHALL INCLUDE: NAME AND ADDRESS OF LABORATORY, DATE OF TEST, LOT NUMBER FOR EACH KIND OF SEED, AND THE RESULTS OF TEST AS TO NAME, PERCENTAGES OF PURITY AND OF GERMINATION. AND PERCENTAGE OF WEED CONTENT FOR EACH KIND OF SEED

5. GROUND LIMESTONE SHALL BE APPLIED PRIOR TO APPLICATION OF FERTILIZER OR SEED AND SHALL BE WORKED INTO TOP 3 INCHES OF SOIL.
6. FERTILIZER SHALL BE SPREAD UNIFORMLY OVER ALL AREAS TO BE SEEDED AFTER LIMING IS COMPLETE.
7. GRASS SEED SHALL BE APPLIED AT THE RATE INDICATED ABOVE AND IN THE SPECIFICATIONS, PROPERLY COVERED, AND COMPACTED WITH AN APPROVED LAWN ROLLER.
8. MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. MULCH MUST MEET THE REQUIREMENTS OF ITEM T–908.
9. STRAW MULCH SHALL BE SPREAD TO A UNIFORM THICKNESS AT THE RATE OF 2 – 3 TONS PER ACRE TO PROVIDE A LOOSE DEPTH OF NOT LESS THAN 1–1/2 INCHES NOR MORE THAN 3 INCHES.
10. MULCH SHALL BE HELD IN PLACE BY LIGHT DISCING, PINS, STAKES, WIRE MESH, OR ASPHALT BINDER.
11. IF ASPHALT SPRAY METHOD IS USED, MULCHED SURFACES SHALL BE SPRAYED UNIFORMLY AT A RATE OF APPROXIMATELY 8.0 GALLONS PER 1,000 SQUARE FEET.
12. IF ASPHALT MIX METHOD IS USED, THE MULCH SHALL BE APPLIED BY BLOWING AND THE ASPHALT BINDER MATERIAL SHALL BE SPRAYED INTO THE MULCH AS IT LEAVES THE BLOWER. BINDER SHALL BE UNIFORMLY APPLIED TO THE MULCH AT THE RATE OF APPROXIMATELY 8.0 GALLONS PER 1,000 SQUARE FEET.
13. CONTRACTOR SHALL PROTECT SEEDED AND MULCHED AREAS AGAINST TRAFFIC. SURFACES GULLIED OR DAMAGED SHALL BE REPAIRED, RESEEDED, AND REMULCHED. CONTRACTOR SHALL MOW, WATER , AND OTHERWISE MAINTAIN SEEDED AREAS IN A SATISFACTORY CONDITION UNTIL FINAL INSPECTION AND ACCEPTANCE OF THE WORK.

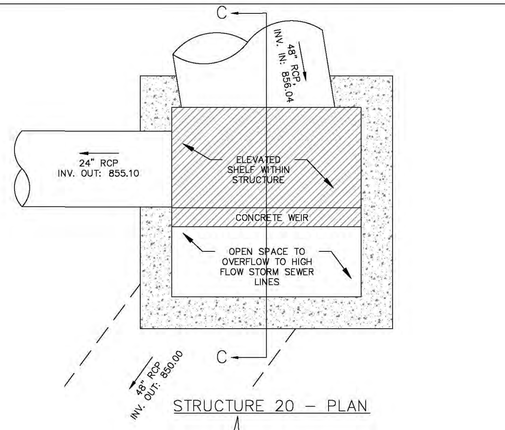
GROUND COVER SCHEDULE

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

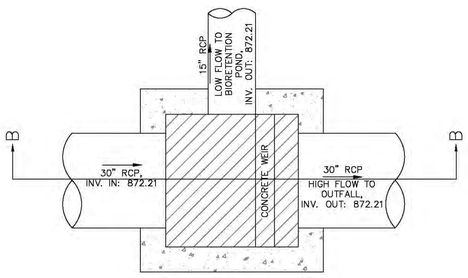
1 / C11 SEEDING SCHEDULE
NTS



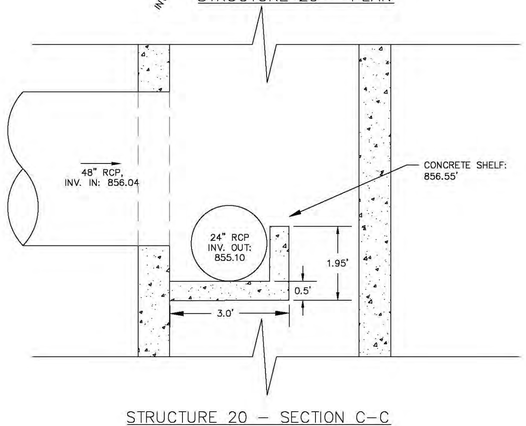
STRUCTURE 5 – PLAN



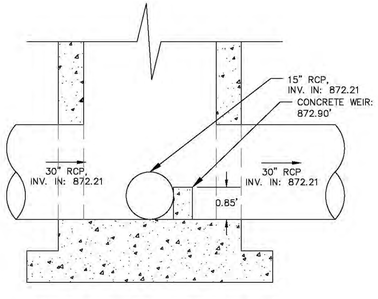
STRUCTURE 20 – PLAN



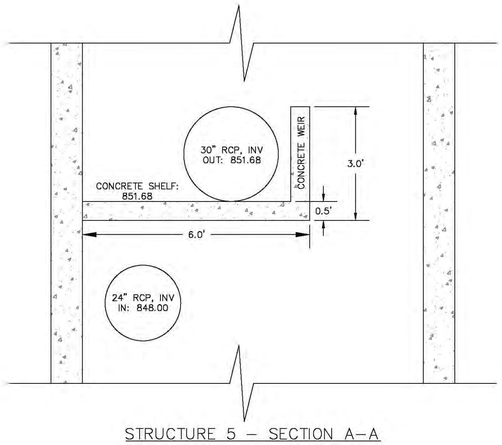
STRUCTURE 20 – PLAN



STRUCTURE 20 – SECTION C–C



STRUCTURE 20 – SECTION B–B



STRUCTURE 5 – SECTION A–A

STRUCTURE	PIPE IN INVERT	WQ PIPE OUT INVERT	WEIR ELEVATION	WEIR HEIGHT (FT)	WEIR LENGTH (FT)
5	852.41, 866.63	851.68	854.43	2.75	9
20	872.05	872.05	872.90	0.85	3.5
25	856.04	855.10	856.80	1.45	5.0

2 / C11 C6 FLOW SPLITTER STRUCTURE DETAILS
NTS

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WKD PROJ.: 20150125.00.RA
PROJ. ORIGIN DATE: NOV. 2015
P.M.: PDS
DRAWN BY: KCB/MRM

PROFESSIONAL SEAL

REV. RECORD:

BY	DATE	DESCRIPTION

- DRAWING STATUS - FOR PERMITTING ONLY - DO NOT USE FOR CONSTRUCTION

PROJECT NAME:
HAECO FACILITY IMPROVEMENTS

OWNER OR CLIENT:
PIEDMONT TRIAD INTERNATIONAL AIRPORT (PTI)

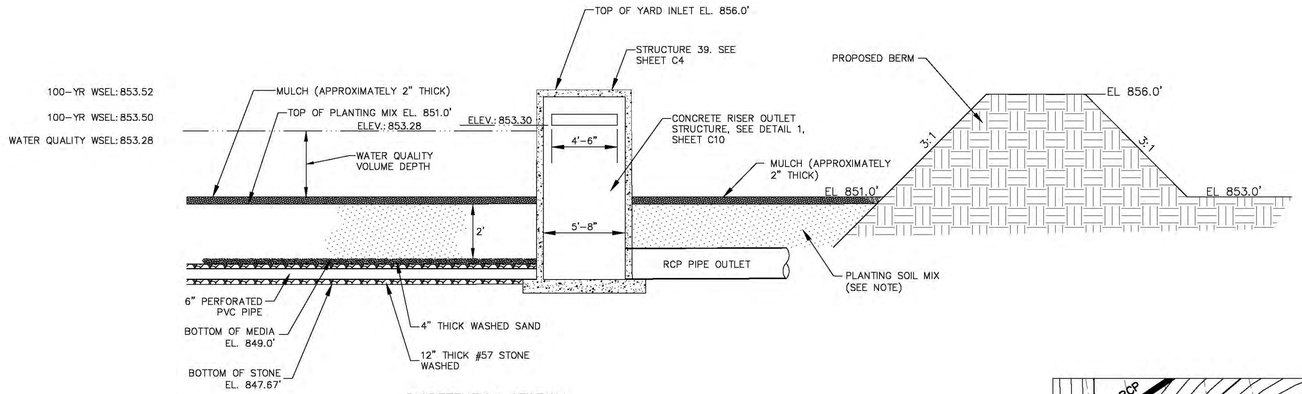
PLAN KEY:

DRAWING TITLE:
DETAILS

DRAWING NUMBER:
C11

PLOT DATE: 11/13/2015

FILE PATH: J:\Projects\Piedmont Triad Airport Authority\2015012500RA - Aviation Tenant Site Development (Haeco)\CADD\WKD Plan Set\20150125_C_SHT_Details.dwg

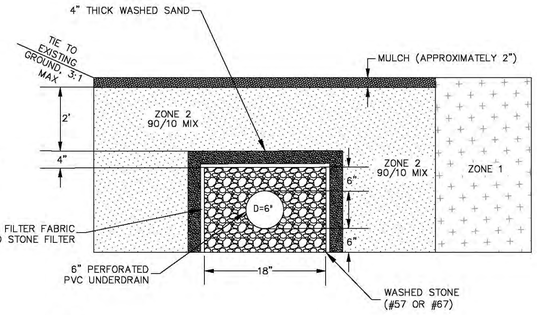


BIORETENTION SECTION
NOT TO SCALE

PLANTING SOIL MIX NOTE:

THE SOIL MIXTURE FOR USE IN A HIGH FLOW RATE BIORETENTION FACILITY SHALL CONTAIN 90% SAND AND 10% FINES AND HAVE A PERMEABILITY (k) RATING FROM 8 INCH/HOUR TO 12 INCH/HOUR AS MEASURED IN THE FIELD. PERMEABILITY TEST RESULTS MUST BE SUBMITTED TO THE ENGINEER AND APPROVED PRIOR TO INSTALLATION OF MATERIAL. THE SOIL SHOULD HAVE A pH BETWEEN 5.5 TO 6.5 AND THE CLAY CONTENT OF THE SOIL MIXTURE CANNOT EXCEED 10%. SOIL MUST NOT BE INSTALLED UNTIL ALL OF THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED AND APPROVED BY THE INSPECTOR. SOIL MIXTURES SHALL BE INSTALLED IN 8 TO 12 INCH LIFTS TO ENSURE ADEQUATE FILTRATION.

1 / C12 | C6 — HIGH FLOW RATE BIORETENTION DETAIL
NTS



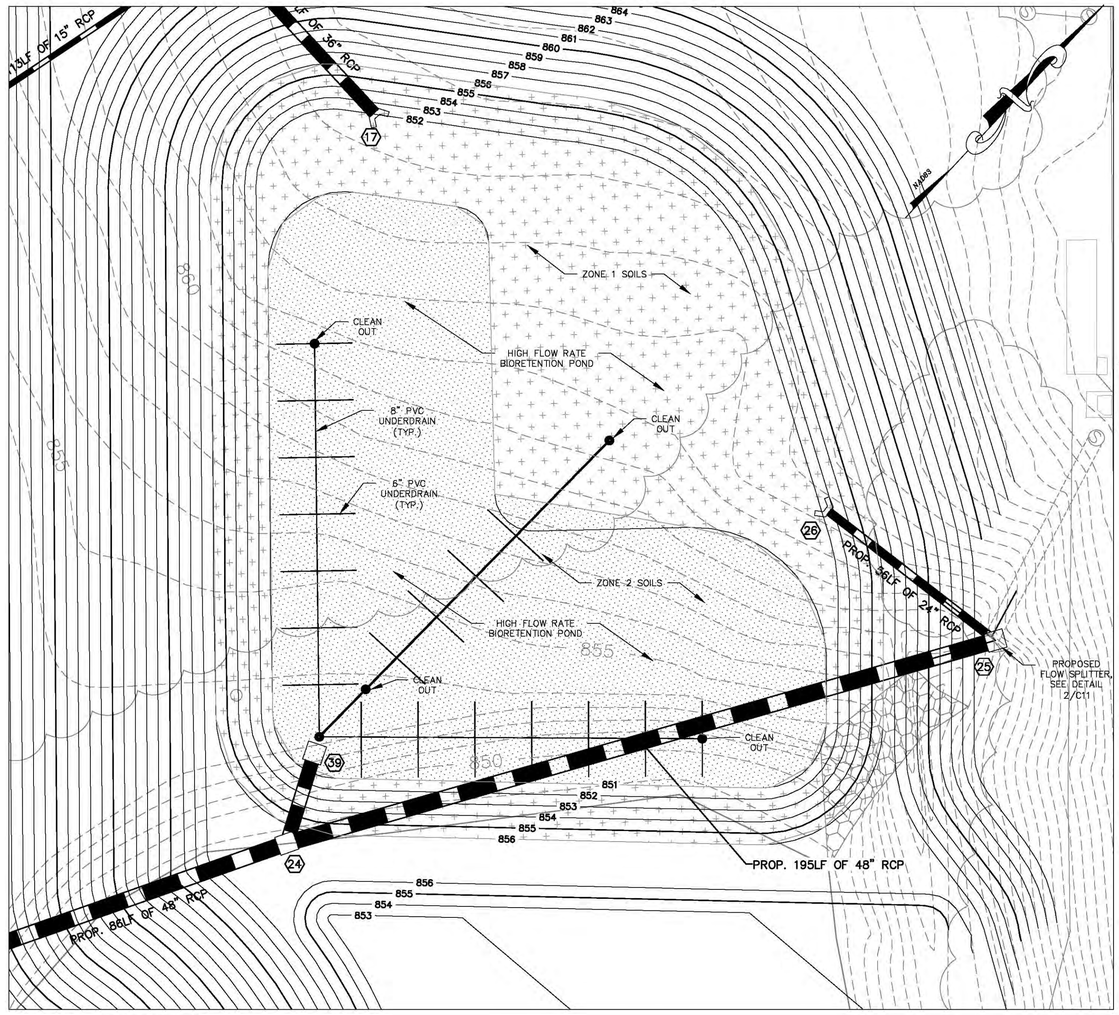
NOTE:

1. TYPICAL SECTION APPLIES TO ALL UNDERDRAIN PIPE.
2. PIPE UNDERDRAINS SHALL OUTFALL INTO PROPOSED STRUCTURE 39 AS SHOWN ON PLANS.

2 / C12 | C6 — UNDERDRAIN DETAIL
NTS

LEGEND

- ZONE 1– WELL DRAINING SANDY SOILS FROM BORROW AREA (SEE SPECIFICATIONS)
- ZONE 2– HIGH FLOW RATE BIORETENTION SOIL MEDIA (SEE SPECIFICATIONS)



HIGH FLOW RATE BIORETENTION PLAN
1"=20'

20 0 10 20 40
1 inch = 20 ft.

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DRAWING NUMBER:
C12

PLOT DATE: 11/13/2015

FILE PATH: J:\Projects\Piedmont Triad Airport Authority\2015012500RA - Aviation Tenant Site Development (Haeco)\CADD\WKD Plan Set\20150125_C_SHT_Detail_BMP.dwg

401 WATER QUALITY CERTIFICATION REPORT

HAECO FACILITY IMPROVEMENTS PROJECT

Submitted on Behalf of:

Piedmont-Triad International Airport

Prepared by:

WK Dickson & Co., Inc.
720 Corporate Center Drive
Raleigh, North Carolina 27607

November 2015

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Tables

Appendices

1.1 Project Description

This report supports the design of the stormwater control measures (SCMs) needed to develop the HAECO Facility Improvements project at the Piedmont Triad International Airport in compliance with the North Carolina Department of Environmental Quality (NCDEQ) regulatory requirements for new development at an airport. A 0.8-acre high flow rate bioretention pond is being proposed to meet the regulatory water quality requirements for NCDEQ. This bioretention pond was designed to infiltrate runoff generated from the 1st inch of rainfall at a relatively high rate to satisfy the water quality requirements outlined in Session Law 2012-200. As shown in the concept plans included in Appendix A, the airport is proposing a 15.9-acre site development project including the construction of the following:

- 5.06 acres of new impervious area associated with the proposed HAECO hangar;
- 5.51 acres of new impervious area associated with the proposed HAECO apron;
- 0.32 acres of new impervious area associated with the proposed HAECO fire lanes flanking the proposed hangar;
- 0.09 acres of new impervious area associated with the proposed HAECO sidewalks;
- Removal of an existing fire suppression pond;
- Removal of an existing 1.1-acre wet pond being used for detention and water quality; and
- Construction of a new 0.7-acre high flow rate bioretention pond that will result in infiltration of the water quality rainfall event.

In addition to providing treatment for the proposed new impervious areas associated with the HAECO Facility Improvements project, the SCM will replace the treatment being provided by an existing wet pond located on the eastern side of the site. This existing wet pond has a contributing drainage area of 15.29 acres with 14.04 acres of impervious cover. In total, the proposed SCM will need to provide treatment for 24.61 acres of impervious cover as shown in the following table:

Table 1: Summary of Area Required for Treatment

Location	Impervious Cover (acres)
Proposed Hangar	5.06
Proposed Apron	5.11
Proposed Access Route	0.32
Proposed Sidewalk	0.09
Existing HAECO Site (Wet Pond)	14.03
	TOTAL = 24.61 acres

As outlined in this report, the proposed SCM will provide water quality treatment for a total of 44.52 acres of impervious cover which exceeds the minimum required for treatment (24.61 acres). As a result, the airport is formally requesting water quality treatment credits to offset a site development project in the future with up to 19.91 acres of impervious surface. The following table summarizes the water quality treatment credits being requested:

Table 2: Summary of Water Quality Treatment Credits

Description	Impervious Area (acres)
Required Area for Treatment	24.61
Provided Area for Treatment	44.52
DIFFERENCE = 19.91 acres	

Also provided in this report is an evaluation of downstream flooding resulting from the proposed site changes. The analysis showed that the proposed project will cause increases to peak flows downstream but will not flood insurable structures, roads, or cause damage to existing property or the existing Harris Teeter detention pond.

2.1 Methodology

The Environmental Protection Agency (EPA) Storm Water Management Model 5.0 (SWMM) was used to size the proposed collection system, flow splitters, and bioretention pond with riser. SWMM simulates the surface runoff response to precipitation for an interconnected system of surfaces, channels, closed pipe systems, culverts, flow splitters, and ponds. SWMM is an ideal model for a complex drainage system such as the one seen at the HAECO site as it combines hydrology and hydraulics and allows the user to not only size on-site improvements but also evaluate downstream flooding. Combining hydrology and hydraulics eliminates the need to iterate between a hydrologic model and a hydraulic model which eliminates the potential for errors.

2.2 Hydrology

Input data for the model was developed using topographic, landuse, and soils maps in GIS to delineate and calculate the basin areas, percent impervious, and Natural Resources Conservation Service (NRCS) hydrologic parameters. The precipitation data for the 24-hour duration, Type II storm was used to represent the synthetic rainfall event. SWMM estimates surface runoff for a sub-basin based on percent impervious, basin width, basin slope, and NRCS curve number for the unconnected pervious areas. A copy of the SWMM input values for the existing and proposed conditions is provided in Appendix B. Unit hydrographs are translated using the watershed basin and slope parameters. This is unique to SWMM.

2.2.1 Drainage Areas

Drainage area maps for the existing and proposed conditions have been included with this report in Appendix C. Drainage areas were delineated using the following topography:

- 2-foot contour interval existing conditions topographic mapping from Guildford County GIS;
- 1-foot contour interval topographic mapping provided by Michael Baker & Associates titled "ADP Mapping (May 2014).dwg";
- Inventory mapping of pipes and catch basins provided by Michael Baker & Associates titled "ADP Mapping (May 2014).dwg"; and
- 1-foot contour interval proposed conditions topographic mapping generated by WK Dickson.

2.2.2 Rainfall

Rainfall distributions for the SWMM model were derived using the NRCS Type II standard distribution. Total rainfall depths for the modeled frequency storms were

obtained online from the NOAA's Nation Weather Service website. Table 3 shows the total rainfall depths used for this study.

Table 3: Design Storm Rainfall Depths

Design Storm	Rainfall Depth (in)
2-year, 24-hour	3.31
10-year, 24-hour	4.77
25-year, 24-hour	5.65
50-year, 24-hour	6.35
100-year, 24-hour	7.07

Source: NOAA's Nation Weather Service website

2.2.3 Land Use

Land use is the watershed cover condition as it relates to the actual type of development within the watershed. Land use influences the runoff characteristics of a sub-basin, and combined with other basin characteristics is used to determine the percent impervious and NRCS curve number for the basin. Appendix D shows the existing and proposed conditions land use mapping for this project. Input data for the existing and proposed percent impervious values is found in Table 4.

2.2.4 Hydrograph Translation

NRCS methodologies typically use a time of concentration parameter to help calculate the response of the watershed to rainfall. SWMM uses watershed basin width and slope parameters to create the unit hydrograph used in the model that will translate the rainfall into runoff. The watershed width is a parameter unique to SWMM that helps define the watershed shape by taking the watershed area and dividing it by the length of the longest flow path. Additionally, SWMM requires input of a basin slope in the calculations used to translate the hydrograph. The basin slope is the maximum grade change from the upstream end of the watershed to the downstream end divided by the length of the longest flow path. The sub-basin slopes and widths are included in Table 4.