August 21, 2014
BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA

ADDENDUM NO. 8
IFB NO. Y14-748 PH
ORANGE COUNTY EASTERN WATER RECLAMATION FACILITY
PHASE V AND CENTRIFUGE DEWATERING IMPROVEMENTS

BID OPENING: August 28, 2014 at 2:00 PM

This addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents. Additions are indicated by underlining, deletions are indicated by ~~strikethrough.~~

This is the Final Addendum in response to those Bidder questions received through August 18, 2014 in accordance with Part C.2.j, Instructions to Bidders.

The bid opening remains August 28, 2014 at 2:00 P.M.

A. FRONT END DOCUMENT CHANGES

Please use the revised bid form labeled revised D-3 and revised D-4, located in Addendum 6 ,pages 62 and 63. Failure to use the Addendum 6 revised Bid Form will result in your bid being found non-responsive and ineligible for further consideration.

B. SPECIFICATIONS

1. Replace Bid Package A, Section 11281, Fabricated Stainless Steel Slide Gates

C. DRAWINGS

Bid Package A (Phase V Improvements):

No.	Sheet No.	Sheet Title	Comments
4	G-004	General Notes, Location Map and Flow Stream Identification	Reference Drawing Note 2
21	C-109	Demolition Plan	Reference Drawing Note 6
25	C-113	Demolition Plan	Reference Drawing Note 6
29	C-117	Yard Piping Plan	Reference Drawing Note 6

30	C-118	Yard Piping Plan	Reference Drawing Note 6
31	C-119	Yard Piping Plan	Reference Drawing Note 6
32	C-120	Yard Piping Plan	Reference Drawing Note 6
33	C-121	Yard Piping Plan	Reference Drawing Note 6
34	C-122	Yard Piping Plan	Reference Drawing Note 6
35	C-123	Yard Piping Plan	Reference Drawing Note 6
36	C-124	Yard Piping Plan	Reference Drawing Note 6
37	C-125	Yard Piping Plan	Reference Drawing Note 6
38	C-126	Yard Piping Plan	Reference Drawing Note 6
39	C-127	Yard Piping Plan	Reference Drawing Note 6
43	C-131	Paving Grading and Drainage Plan	Reference Drawing Note 6
47	C-135	Paving Grading and Drainage Plan	Reference Drawing Note 6
51	C-139	North Ribs - Plan 1	Reference Drawing Notes 1, 7, 8
52	C-140	North Ribs - Plan 2	Reference Drawing Notes 1, 3, 7, 8
53	C-141	South Ribs - Plan 1	Reference Drawing Note 1
54	C-142	South Ribs - Plan 2	Reference Drawing Note 1
62	C-505	Civil Details	Reference Drawing Note 7
65	C-508	Civil Details	Reference Drawing Note 1
68	C-511	Civil Details	Reference Drawing Note 5
278	D-565-101	SE Reject Outfall & Intake Structure Plan	Reference Drawing Note 9
279	D-565-301	SE Reject Outfall & Intake Structure Section	Reference Drawing Note 9
283	D-580-301	Chlorine Contact Tank Sections	Reference Drawing Note 9
284	D-580-302	Chlorine Contact Tank Sections	Reference Drawing Note 9
286	D-502	Process Details	Reference Drawing Note 4

Bid Package B (Centrifuge Dewatering Improvements):

No.	Sheet No.	Sheet Title	Comments
2	G-002	Index of Drawings and General Notes	Reference Drawing Note 2

Drawing Notes:

1. Reference Bidder Question No. 28
2. Reference Bidder Question No. 46
3. Reference Bidder Question No. 1
4. Reference Bidder Question No. 12
5. Reference Bidder Question No. 14
6. Reference Bidder Question No. 16
7. Reference Bidder Question No. 19
8. Reference Bidder Question No. 13
9. Reference Additional Information No. 1

D. <u>BIDDER QUESTIONS</u>

1. In reference to Bid Package A, please see the questions below from a potential supplier/vendor for the geocomposite product noted on revised Drawing C-140, Detail A as issued in Addendum 6.

    a. The noted material GSE HyperNet Geonet is not a geocomposite. A geocomposite will have either one layer of geotextile bonded to one side of the geonet material to form a single-sided geocomposite, or a layer of geotextile bonded to each side of the geonet to form a double-sided geocomposite. Please clarify if the geosynthetic material is to be a geocomposite or a geonet?

    Please reference Drawing C-140, Section A with the following revision; ~~*SEE NOTE 11. GEOCOMPOSITE MATERIAL, 250 MIL GSE HYPERNET GEONET, OR EQUAL*~~ *SEE NOTE 11. 200 MIL GEONETCORE X 6OZ/YD^2 NONWOVEN GEOTEXTILE GEOCOMPOSITE, GSE BIODRAIN LP, OR EQUAL* ***(Attachment)***

    b. Also, an 8 oz/sy nonwoven fabric would be geotextile, not geogrid. The continued reference to geogrid is confusing and misleading. Please clarify if the geosynthetic material above the PVC liner is to be geotextile or geogrid?

    Please reference Drawing C-140, Section A with the following revision; ~~*SEE NOTE 11. 8 OZ NON-WOVEN GEOGRID FABRIC, TYPAR 3801, OR EQUAL*~~ *SEE NOTE 11. MIN 32 OZ/YD^2 NONWOVEN GEOTEXTILE, GSE NW32, OR EQUAL* ***(Attachment)***

c. Concerning Notes 5 and 11 on revised C-140, these specifications are usually done by the design engineer before it is put out to bid, it is going to be very difficult for the owner to get similar bids if left up to the submittal process after award of the project, and could cause significant delay and unnecessary cost to the project.

Noted.

2. Reference Addendum #4, the answer to bidder question 136 regarding MicroC2000, the second and third sentences that state the following:

"Following issuance of BNR substantial completion "A" (Process 520 and Phase I/II BNR Process Train (South)), as noted in Section 01040, Part D.1.i(1), and all BNRs (noted herein), the Contractor is required to fill all storage tanks with in Process 520 to capacity, 520-TK-1 and 520-TK-2."

and

"Following the issuance of BNR Substantial Completions "A" through "E" as noted in Section 01040, the Owner will supply the MicroC2000 product for operating BNR process trains."

To paraphrase this answer, the Contractor will be required to provide the MicroC product as follows:

- Supply for Startup and System Testing for :
  a. Process 520
  b. Phase I/II BNR (North & South)
  c. Phase III BNR
  d. Phase IV BNR
- Complete fill of the Process 520 (Tanks 520-TK-1 and 520-TK-2) after Substantial Completion A-South

Please confirm.

Please reference Bid Package A, Specification Section 01040 Part D.1.i.(1) and Figures 1 and 2 illustrating the various BNR Substantial Completions; which are as follows:

(a) BNR Part A1 – Process 520
(b) BNR Part A2 - Phase I/II BNR Process Train (South).
(c) BNR Part B - Phase I/II BNR Process Train (North).
(d) BNR Part C - Phase III BNR Process Train (North)
(e) BNR Part D - Phase III BNR Process Train (South)
(f) BNR Part E - Phase IV BNR Process Train

The Bidder is correct in that the tanks 520-T-1 and 520-T-2 are to be filled after BNR substantial completion "A" as noted in the response to Addendum 4, Bidder Question 136. These BNR substantial completions are also listed in Part 1.A.5.a of Section 01664. The Bidder's Question doesn't make mention that Phase III BNR is separated into two substantial completions, Parts C (North) and Part D (South), which are required.

3. In reference to Bid Package A, Specification Section 01664, System Start-Up and Testing, Part 2.F, for Temporary Pumping and Piping Facilities for BNR and Secondary Clarifier Treatment, subsection's 2 and 3 regarding the System Start-up test.

    a. Subsection 2.F.2 states that the tanks are filled with reclaimed water, and then recirculated with-in the processes at the prescribed flow rates. Can this re-circulation take place using plant equipment? Or must the contractor provide external pumping to create the recirculation. If the contractor must furnish external pumping to create the re-circulation (after filling) then please address the following:

    As noted in Parts 3.C and 3.D, the BNRs are to be operated with reclaimed water within the Preliminary Matters and Start-Up System Testing System phases. For the Return Activated Sludge (RAS) and Internal Recycle (IR) flows, the Contractor is to utilize both the existing pumps and the new pumps that are part of the Work. For example in the Phase I/II BNRs, the IR Pumps are existing which would be operated in simulated operation and the RAS pumps are new and would be operated at their design flow rates in simulated operation. Temporary pumps are required to simulate the Raw Sewage influent at the respective flow rates illustrated for each the different BNRs. Drawings G-00 through G-011 illustrate the various flow rates for Raw Sewage, IR and RAS for each BNR. The flow would be recirculated either from the clarifier effluent drop boxes or reaeration channels to the fermentation basins, or as dependent upon the respective BNR in question. The simulation of the raw sewage flow is the volume of flow to be recirculated during the 48 hour Start-Up System Testing Phase described in Part 3.D. Once Start-Up System Testing is complete and the tanks are drained of reclaimed water, seeding the BNR may be initiated as described in Part 2.F.4.The seeding phase will require recirculation until the BNR is ready for System Testing Phase as described in Part 3.D.The responsibility for the Means and Methods to produce the respective system testing requirements in 01664 is to be developed and submitted by the Contractor in accordance with Part 1.B.

b. What is meant by recirculated? Once the tanks are full, does additional reclaimed water enter via the fermentation basin at prescribed rates and then is circulated through the system (i.e. discharges via the chlorine contact tank) or after the tanks are filled with reclaimed water, is the reclaimed water pumped back to the fermentation basin (at prescribed rates) simulating flow?

   What are the recirculation points (i.e. chlorine contact tank back to Fermentation Basin, etc.):

   Please reference the response to Addendum 8, Bidder Question 3.a. regarding the intent of the recirculation and the points for recirculation. The points of recirculation varies respective to the multiple BNRs, albeit it is within the BNR series of Work, therefore not from the Chlorine Contact process back to the Fermentation Process, just the furthest downstream process involved in the Work. For instance in Phases I/II &IV there are secondary clarifiers included in the Work, so the recirculation of simulated Raw Sewage would be from the secondary clarifiers. For the Phase III BNRs the flow would be from the Process 330 reaeration channels to the Fermentation Basins.

c. Subsection 3 states, following acceptance of the of the system start up test the reclaimed water will be pumped out of the Structures by the Contractor to either Process 395 or 495 in plant lift station.

   Can this pumping be done using in-plant equipment or is external pumping required.

   Please reference the responses in Addendum 7, Bidder Questions 11 and 12 regarding the use of existing plant drain system to drain the reclaimed water volume from the tanks. Other than Process 495 and 395 lift stations, there is no existing in-plant equipment to be utilized to return the volume of reclaimed water out of the BNRs back to the Phase III Preliminary Treatment Structure (Process 300).Therefore it was included in the Work that the Contractor is responsible to pump out the reclaimed water prior to initiating the seeding process.

4. Upon review of Addendum 6, Bidder Question 142 in reference to Bid Package B, refers to Section 16800 Part 1.C. Where in 8 (eight) cameras are required in the EWRF building?

   Please reference Specification Section 16800, Drawings E-110, E-650-104, E-650-105 and I-207 for requirements regarding surveillance system equipment to be installed in the Centrifuge Dewatering Building.

5. We have the following questions regarding the Hydro International Inc. Grit Removal System, dated November 4, 2013, and included in Appendix C:

   Attachment C is an Attachment to the Contract Documents for purposes of reference. It is not part of the Contract Documents. Please reference Specification Section 01025-8, Part D.2 regarding the description of what is included in Base Bid Item No. 1.1, described as Base Bid Item 2A (Hydro-International Inc. Grit Removal System) in Specification Section 01025, versus Base Bid Item 1.0 (Phase V Improvements). The following responses are provided for informational purpose only as questions are in reference to an Attachment.

   a. Please confirm that the current set of bid documents are consistent with and have not changed any conditions from the plan set dated October 17, 2013 upon Hydro International based their pricing for the single sourced grit removal equipment.

      No revisions have been made to the Contract Documents by Addendum believed to impact the Hydro-Internal equipment.

   b. Please confirm that the pricing included in the specifications (which is noted to have expired on 6/30/14) will be held firm by Hydro International for the full duration that the contractor is required to hold firm their bids firm for the date proposals are submitted to the Owner.

      Please see Addendum 1 for the revised Attachment C which expires on December 31, 2014.

   c. Please confirm that the conditions identified in this quote relating to Flow Rates, Solids Content and Head Loss and the resulting grit removal rates are acceptable to the Owner.

      The information as described within the Attachment C is acceptable to Orange County Utilities.

   d. Has Hydro International submitted a price for the 2 year extended warranty alternate? If so, please provide. If this has not been provided, please confirm whether or not it is required to be included in this alternate.

      The Warranty noted in Attachment C is for the Base Bid which is 3-years as specified in Specification Section 11320-19, Part 3.E. Specification Section 11320-19, Part 3.F also includes a 2-year Additive Warranty. Reference Specification Section 01025, Part D.2 which states the following; The manufacturer's additive 2-year warranty shall be included within the Additive Bid Item No.1A (Additive Equipment Warranty).

e. Please confirm that the Owner has agreed to and will honor the payment terms indicated in Hydro Internationals Standard and Special Conditions which form a part of the their proposal. Please note that these payment terms vary from those identified in the Owner contract.

The inclusion of Attachment C is for informational purposes only pertaining to advertisement. This equipment is not Owner Furnished Equipment that is turned over to the General Contractor. The Contractor is responsible to purchase the equipment and install it in conformance with the Contract Documents.

f. Reference Item 7 & 8 in Hydro Internationals Standard and Special Conditions. These section states that the "goods are sold F. O. B manufacturing site" and that the risk of loss transfers to the buyer after Hydro delivers the goods to the carrier. Has the owner carried costs for the necessary insurance for this equipment during delivery or is this the Contractor's responsibility?

The inclusion of Attachment C is for informational purposes only pertaining to advertisement. This equipment is not Owner Furnished Equipment that is turned over to the General Contractor. The Contractor is responsible to purchase the equipment and install it in conformance with the Contract Documents.

g. Reference Item 16 in Hydro Internationals Standard and Special Conditions. This indicates that Sales tax is excluded from this proposal. Is this project taxable? If not, will an exemption certificate be provided to the Contractor.

Please reference Article 24-Miscellaneous, paragraph six, which outlines the County policy on direct purchase of equipment. The Hydro-International equipment is responsible to be supplied by the Contractor as part of the Work. It is uncertain if the County will desire to enact the direct purchase option for this equipment.

h. The Hydro International quote indicates a maximum delivery time of 16 weeks after approval of shop drawings for their equipment. Obviously, the Pretreatment Facility will not be ready to accept this equipment until a much later date. What was the anticipated delivery date for the equipment that the Owner directed Hydro International to base their pricing on?

The inclusion of Attachment C is for informational purposes only pertaining to advertisement. The Hydro-International equipment is not Owner Furnished Equipment that is turned over to the General Contractor. The

Contractor is responsible to purchase the equipment and install it in conformance with the Contract Documents.

i. The Hydro International Quotation does not state that O & M manuals have been included. Please confirm that these are inclusive in this price.

The inclusion of Attachment C is for informational purposes only pertaining to advertisement. O&M manuals are required to be provided for all equipment supplied on the Project as noted per Specification Section 01300, Part D. O&Ms are not listed within the Exclusions on page 4 of 8 of Attachment C.

6. Please confirm that Orange County has the web-based Project Manager software licenses required in Specification 01400 and that the Contractor will not be required to purchase these items but only provide the computer for use in the field offices as has been done on recently bid projects in Orange County.

Orange County Utilities has the appropriate number of licenses required.

7. In reference to Bid package A, Structure/Cleaning/ Bid Item No. 3A, we have the following questions regarding Bid Item #3A:

a. Can a "BNR Train" be drained to witness the amount of cleaning, sludge removal, etc. that will be required to perform the work? Can this be available by Tuesday August 26th?

No, the BNRs cannot be drained for visual inspection, hence the application of a unit priced Bid Item 1.2, described as Base Bid Item No. 3A (Material and Debris Removal from Existing Structures) in Specification Section 01025.

b. If a train cannot be drained, can the county provide a thickness of sludge with- in the structures that the 1,000 ton allowance was estimated? or the parameters that the 1,000 tons was estimated? (Note: Removal of sludge is dependent on the area to be removed)

Please reference Specification Section 01025-8, Part D.3, describing the Base Bid Item No. 3A (Material and Debris Removal from Existing Structures). The material noted as sludge in the question is this material. The allowance was based upon prior work at this facility and other similarly sized facilities.

8. In reference to Bid Package A, Drawings C-139 and C-140, the following questions are regarding liner system design:

a. What is the purpose of the slope ventilation

To allow gases that potentially could develop under the liner to propagate up to and to ventilate at the top of the berm.

b. Confirm that the purpose of the check-valves is to relieve the hydrostatic pressure due to a rising ground water table and the “relieved” water can flow into the pond.

When the RIBs and Reject Storage Pond were built, they were built up above surround grade to balance cut/fill in lieu of being excavated down. Therefore this area is higher than the grade in surrounding vicinity including the WRF process area to the west. The interior finished grade of the Reject Storage Pond was built up 3 feet higher than the interior finished grade of the surrounding RIBs. In accordance with FAC Rules, the RIBs and Reject Storage Pond were originally designed for a 3 foot operating depth and 3 feet of freeboard. A purpose of the High Water Check Valves is for the instance if the surrounding RIBs are overfilled greater than their normal 3-foot operating depth up to their top of berm. In the event the RIBs are overfilled to their top of berm, that adjacent water surface elevation equates to a water surface elevation that is 3-feet above the proposed finished grade of the Reject Storage Pond.

9. In reference to Bid Package A, Specification 02665 for the Flexible PVC Geomembrane Liner, can you supply the following clarification’s:

a. Through Part 1-C-3-1 Calculations for the sizing and spacing of high water table check valves and slope ventilation details are required. What is the purpose of the slope ventilation details?

Reference the response to Addendum 8, Bidder Question 8.a.

b. Please confirm the purpose of the check valves is to relieve the hydrostatic pressure due to a rising ground water table and the relieved water can flow into the pond.

Correct, reference the response to Addendum 8, Bidder Question 8.b.

c. Please confirm all information required to provide the calculations to be performed are in the existing Geotechnical reports and no additional studies or borings are required for these calculations.

Orange County Utilities cannot confirm what is required by the Liner System Engineer as noted in Specification 02665-3, Part 1.C.3 to provide the detailed shop drawing submittal for the liner system and respective

appurtenances. The Geotechnical Report is an Attachment that is provided for informational purposes only. Attachment B is not part of the Contract Documents.

10. In reference to Bid Package A, Specification Section 02665 for the Flexible PVC Geomembrane Liner, all shop drawings that require Contractor to provide a design based on underlying calculations, such as Flexible PVC Geomembrane Liner, please confirm that the Owner will provide and/or affirm the underlying assumptions upon which the calculations will be based.

    The Owner and Engineer will review the submittal in similar manner to the other submittals specified for the Project. Orange County Utilities cannot confirm that the assumptions submitted in the future, by the Liner System Engineer as specified in Section 02665-3, Part 1.C.3, will be affirmed.

11. Bid Proposal sheet D-4, we noticed that Bid Proposal sheet D-4 was revised per addendum #1, however a new bid sheet for insertion was **not** provided. Please confirm.

    See page 62 and 63 of Addendum 6,use Revised pages D-3 and D-4 provided in Addendum 6.

12. Bid Package A: Comparing the Gate Schedule within Spec Section 11281 Fabricated Stainless Steel Slide Gates with the gates defined in the Tag List, there are discrepancies. These discrepancies are noted on the attached. Please confirm the correct size for each gate.

    *In response to the Bidder's Question, the Tag List was reviewed in coordination with Specification Section 11281 and the Drawings. In response to some discrepancies identified, Specification Section 11281 as issued in Addendum 7, is revised and reissued in Addendum 8. In addition to the revisions to the gate dimensions, the Tag List includes multiple revisions pertaining to other process areas revised by Addenda, e.g. the elimination of the Process 470 Disk Filter and Specification Section 11284. Therefore the Tag List will be issued with the Conformed Construction Documents with the revisions to the gate dimensions to coincide with Specification Section 11281 as well as all other Addenda revisions. Bid Package A, Drawing D-502 is revised to clarify the dimensions illustrated within the Specification Section 11281 in coordination with the Drawings. Specification Section 11281 and the Drawing D-502 should be utilized and **not** the Tag List issued in the Bid Set.* ***(Attachment)***

13. Bid Package A: Detail 4 on sheet C-510 references Section 02665 for spacing and locations of PVC pipe boots and check valves. However, I was unable to find this information in Section 02665. Please provide information regarding the location, quantity, and spacing of the PVC pipe boots and check valves.

    Drawings C-139 and C-140 illustrate the High Water Table Check Valves within the Reject Storage Pond approximately 500' on center each way. Please reference Notes on Drawings C-139 and C-140 and Specification Section 02665 regarding the responsibilities of the Liner System Engineer to prepare the submittal providing the specific number and location of High Water Check Valves. ***(Attachment)***

14. Bid Package A: Detail 1 on sheet C-511 references Section 02665 for spacing and locations of the Sch. 40 PVC vents. However, I was unable to find this information in Section 02665. Please provide information regarding the location, quantity, and spacing of the vents.

    *The Slope Ventilation Detail on Drawing C-511/Detail 1 is revised to note in the perspective view of the detail to include an interval for the vertical vents to be placed at 250' on center around the perimeter of the Reject Storage Pond. Please reference Note3 on the revised and Specification Section 02665 regarding the responsibilities of the Liner System Engineer to prepare the submittal providing the specific number and location of vents. Note 3 is revised as follows; ~~REFERENCE SECTION 02665 FOR THE CRITERIA TO DEFINE SPACING AND LOCATION OF VENTS~~ SPACING TO BE SPECIFIED BY LINER SYSTEM ENGINEER PER SECTION 02665 (**Attachment)***

15. Bid Package A: What will be the perimeter of the equipment storage lots called out in Note 4 of Detail 7 on sheet C-502? This is needed to determine the cost of the new concrete mow strip.

    The two equipment storage lots totaling 24,500 SF annotated in Note 4 within Detail 7/C-502 are assumed to be square, therefore each will have a perimeter of approximately 445 lineal feet.

16. Bid Package A: Drawing C-113 shows a portion of the asphalt roadway to be removed. However, drawing C-135 appears to show a new road including a soil cement base and 2" of asphalt where the existing road is not demolished. Please clarify which areas of asphalt shall be removed and/or milled and which areas receive a new road and base.

    Detail 6/C-503 is to be utilized for Pavement Repair for utilities installed under existing roadways. This detail is to be applied as the Work is performed in order to provide access within the existing roadways after that section of

Work is completed. At a later point in the Project, the existing roadways, including several patched sections per Detail 6/C-503, will be milled and overlaid with the 1" Type S-III asphalt to the limits shown in the Paving, Grading and Drainage Drawings. The dark hatch within the Paving Grading and Drainage Drawings is for the construction of new roadways per Section A/C-134. The following reflect the revisions to the Drawings for clarification purposes.

The demolition hatch for the existing roadways on Drawings C-109 and C-113 is deleted. The following Note is applied to all of the Yard Piping Drawings C-117 through C-127; UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR AND DETAILS 6/C-503 AND 4/C-503. Drawings C-117, C-131 and C-135 are revised to eliminate the dark hatch in the prior areas Detail 6/C-503 was called out and hatched in the light hatch for the 1" S-III mill and overlay. ***(Attachment)***

17. Bid Package A: Drawing A-575-501 calls out for the Electrical Building to receive termite treatment beneath the slab. Is this the only place termite control is required?

    Reference the Addendum 6, Bidder Question 133; All new buildings require the application of Termiticide per Specification Section 02361, which are those included in the Architectural discipline; Processes 155, 500, 520 & 575.

18. Bid Package A: In Spec Section 02362, it states that the pile centers be drilled no closer than 20' in a 16 hour period. The standard building code pertaining to this is 6 pile diameters, or 9 feet. From looking at the soil borings, I see no layers of soil that would allow for the interconnecting of piles. Since the pile spacing on the plan is roughly 12', this specification has a significant impact on schedule. In addition, it may not be practical to install test piles in compliance with this specification as you would need a reaction beam in excess of 40' to accommodate 2 reaction piles and 1 test tension pile. Is this specification going to be enforced on the plan, as well as load test application? It may be helpful to have Nodarse & Associates weigh in on the discussion as there are no auger cast pile references in the soil report.

    Bid Package A, Specification 02362, Part 3, Paragraph A, Item 5 is revised as follows:

    5. *Do not install within 16 hours of the installation of an adjacent pile which is within ~~20~~ <u>10</u> feet unless accepted in writing by the Engineer.*

19. Bid Package A: Drawing C-137 calls out a Modified Energy Dissipater at the Phase V Stormwater Pond and references Detail 10/C-505. Note 1 in this detail states that rip rap is to have a mean diameter of 6" and the depth is 18". Note 4 in the same detail says that crushed concrete is to have a 12" diameter and be at a depth of 36". Which material is required at this location, rip rap or crushed concrete? If rip rap is used, can it also be used in lieu of crushed concrete per details 1 on C-139 and 2 on C-140?

    Either rip rap, or rebar free crushed concrete, may be used. Note 4 within Detail 10/C-505 pertains to the larger size and depth of embankment armoring within the Reject Storage Pond. The other locations for Detail 10/C-505 pertain to Note 1. Please reference revised Detail10/Drawing C-505 and Drawings C-139 and C-140. ***(Attachment)***

20. Bid Package A: Please provide an approximate location of the two additional storage lots per detail 7/C-502.

    The two additional equipment storage lots will be located within 2,500 feet of the existing processes noted on Drawing C-101 in a location as designated by the Orange County RPR.

21. Bid Package A: Referring to drawing C-114, to what depth shall the biofilters be excavated?

    Please reference Addendum 6, Bidder Question 50. The depth of aggregate within the Biofilters is 36 inches below grade.

22. Bid Package A: Referring to drawing C-114, what material are the structures depicted east of the biofilters and what is their depth? These items were not visible during the site visit.

    It is believed that they used to be wooden ramps to access the top of biofilters, which is a pile of mulch approximately 4' above grade. They are not underground utilities or structures. If they were not observed during the Bidder's site investigation, then they have been removed prior by Orange County Utilities.

23. For Bid Packages A and B: Are the metal building wall panels to be a 24ga R panel as specified in Specification Section 13121 Part 2 Section E, or are the metal building wall panels to be a 4" pre-insulated sandwich panel to work with the fiberglass sandwich panels? The fiberglass sandwich panel specified may not be compatible with each building manufacturer's sandwich panel wall system. If the walls are to be an insulated sandwich panel system, does this change the roof as well? Please provide answer and directive as how to proceed. The two systems as currently specified do no work with each other.

    The wall panels shall be as specified in 13121 part 2.E. The fiberglass sandwich panels (Kalwall) shall be installed into framed openings which have been designed to replace structurally the coverings and frames displaced per specification 13121 part 1.D.7.

24. Bid Package A: Is the Owner responsible for relocating the existing vehicles, equipment, and materials located in the area of the new Centrifuge Dewatering Building not shown on the drawings?

    Orange County will relocate all of their equipment within the existing equipment storage lots.

25. Bid Package A: How many existing overflow structures are there at the RIBS? Which ones are to be demolished?

    The new RIB Overflow Structures per Detail 1/Drawing C-508 are replacement of the existing 12" RW (CMP) overflow pipes. There is an existing section 12" RW (CMP) and Concrete Slab, as shown in the Demolition Plan and Section per Detail 1/C-508, in every location where new RIB Overflow Structures are shown on Drawings C-139 through C-142.

26. Bid Package A: Refer to detail 1 on C-508. It appears that the design of the new overflow structures will limit your access around the Reject Storage Pond and require vehicles to drive down, across and back up, potentially causing vehicles to get hung up on the concrete ramp. Please confirm that there is no "bridging" of any kind (concrete, or metals) on these structures to allow for vehicular traffic to smoothly cross over them.

    Vehicular access is typically limited to tractors or other similarly sized equipment. The depth of the clear channel is to maintain the water surface lower than the finished surface of the concrete edge during the event of a high overflow, so as to not erode the embankment. There is no bridging required.

27. Bid Package A: Please provide a sectional view through the new overflow structures in the direction that will show the width of the channel (i.e. section view looking into the direction the water will flow).

    This information is shown within the plan view on Detail 1/C-508; the invert of the 4' wide channel is 18" below the finished surface of the edge of concrete. An additional Sectional view will not be developed.

28. Bid Package A: Per detail 1 on C-508 the new overflow structures vary in length. The only way to determine these lengths is to scale the structures via drawings C-139 thru C-142. When scaling these drawings, the width of the overflow structures appears to be 18' whereas the detail on C-508 shows the width to be 10'. Therefore, it leads us to believe that the scaled length is wrong as well. Please provide length and width dimensions for each of the new overflow structures.

    Reference Addendum 6, Bidder Question 154 regarding the dimensions of the Modified RIB Overflow Structures within the Reject Storage Pond as illustrated on Drawings C-139 and C-140. Per Detail 1/Drawing C-508, the dimensions of the other RIB Overflow Structures are 10' wide and have a varying length because the slopes of the existing BIBs vary per each respective RIB. Because of this variation, Drawings C-139 through C-142 are revised to include a dimension from the toe of slope to opposing toe of slope for each RIB Overflow Structure. The Improvement Plan on Drawing C-508 is revised to designate the dimension from the toe of slope to opposing toe of slope is "DIMENSIONED PER DRAWINGS C-139 THRU C-142". ***(Attachment).***

29. Bid Package A: Detail A on Drawing C-140 has a call-out for sod pointing to the top of the 24" compacted backfill at the Reject Storage Pond. Please confirm that only the sloped embankment shall receive sod and not the flattened out sections of the RIBs.

    Please reference Addendum 6, Bidder Question 67, Drawings C-139 and C-140 were issued in Addendum 6 which contained the following Note 10; THE 5:1 EMBANKMENT DOWN INTO THE REJECT STORAGE POND IS TO BE GRASSED WITH SOD OUT 5' FROM THE TOE OF SLOPE INTO THE POND. SEED AND MULCH MAY BE USED FOR GRASSING THE POND BOTTOM.

30. By looking at the specifications we noticed that Crystalline products are specified for waterproofing the concrete. We believe that our Hycrete waterproofing add mixture is the correct application for the above mentioned project due to superior performance. I'm enclosing the info. for our X-1000 Hycrete product which acts with a dual purpose of waterproofing and corrosion protectionWe believe that our Hycrete waterproofing add mixture is the correct application for the above mentioned project due to superior performance. I'm enclosing the info. for our X-1000 Hycrete product which acts with a dual purpose of waterproofing and corrosion protection.

    Please reference Addendum 6, Bidder Question 171, which revised Specification Section 03300-14, Part 2.01.G.8.b as follows; Acceptable admixture is Xypex Admix C-1000 manufactured by Xypex Chemical Corporation, 13731 Mayfield Place, Richmond, B.C., or equal. Please reference Addendum No. 1, Bidder Question 4 regarding Orange County's policy of naming additional manufacturers during Advertisement. Following the Notice of Award and during shop drawing submittal phase, alternative manufacturers will be considered on an "or equal" basis to those specified.

31. Reference Bid Package A Specification Section 09900. Regarding the coating system for the submerged concrete with raw sewage - the plans call for 3 optional systems; Tnemec, Green Monster and Raven. The specs state those systems as well as Sherwin Williams. We would prefer to use the S.W. system as the system is less expensive without sacrificing quality and specifications. Please confirm that Sherwin Williams is acceptable per the specifications.

    Specification Section 09900-12, Part 2.E.3 include System 33 which is for Submerged Concrete, Raw Sewage or Raw Water. It is assumed that this is the System the Bidder is questioning regarding the overlap with the coating systems specified on Drawing S-001 for Pretreatment Structure Coatings. System 33 does not include the same coatings identified on Drawing S-001 as the question denotes. Please reference the Concrete Coating Schedule in Specification Section 09900-31, Part 3.L.11 which designates that the Process 500 Preliminary Treatment Structure Interior is "System 34 (Floors) Reference Structural & Architectural Drawings". Please reference Addendum 4, Additional Information No. 1 that revised Drawing S-500-103, Note 1 as follows; PROVIDE COATING ON ALL INTERIOR VERTICAL AND HORIZONTAL SURFACES IN CONTACT WITH WATER, SEE NOTES ON S-001. Drawing S-500-103 is coordinated with Drawing S-001 and the Concrete Coating Schedule in Specification Section 09900-31, Part 3.L.11 regarding the Tnemec Perma-Shield, Green Monster and Raven systems for the interior channels of the Preliminary Treatment Structure. System 33 is not referenced in either the Coating Schedule or Mechanical Process Drawings

for the Preliminary Treatment Structure. Alternative coating systems will not be considered for the interior of the Preliminary Treatment Structure in contact with water.

32. Reference Bid Package A Specification Section 09900 Page 31 Concrete Coating Schedule. The concrete coating schedule lists several structures that are existing (i.e. Phase i/II BNRs etc.)

    a. At existing structures, is it a requirement to coat the entire structure, or only those parts of the existing structure that is impacted?

       The entire structure is to be coated as designated within the Concrete Coating Schedule in Specification Section 09900-31, Part 3.L.11.

    b. The concrete coating schedule has a column named process numbers. When it is stated that process numbers 210-230 are to be painted, does this mean process 210 through 230, or process numbers 210 and 230?

       Yes, in the typical convention for a hyphen is used, it means Processes 210 through Processes 230.

33. Specifications Section 02665.C.3: State that the final design requirements of the Rejects Storage Pond lining will be completed by the Liner Systems Engineer. The final design will not be completed until after award of the bid. This includes the calculations and final design/product selection of the type of geocomposite, the size and spacing of the high water check valves and the slope ventilation details, and the final termination details of the Geosynthetic liner system.

    Is there any surveying information related to the geotechnical report to determine how the water table height is related within the Rejects Storage Pond? i.e. : Borings have water table height related to what elevation?

    Attachment B, the Geotechnical Engineering Report, is an Attachment to the Contract Documents for purposes of reference. It is not part of the Contract Documents. The following is for informational purposes only as the questions are in reference to an Attachment and not the Contract Documents.

    There was no topographic survey performed in relation to the Geotechnical Analysis in the Reject Storage Pond. As denoted in Section 4.10 of the Geotechnical Analysis, the analysis within the existing Reject Storage Pond was limited to determining the presence of an existing clay liner and the leakage testing of the pond.

34. Per Specifications Section 02665.1.B.4: The qualifications of the Liner System Engineer- “Have successfully completed at least three (3) projects with similar liner systems in the United States of America within the last ten (10) years, from the date that Bids are opened.”

    Could clarification be provided on the criteria that the Liner System Engineers projects have been.

    a. Do the systems have to be completely submerged or partially submerged?

       Section 02665, Part 1.B.4.(2) states “similar liner systems”. Either a completely submerged or partially submerged system would be acceptable so long as they’re reasonable in comparison to the scope of the current Project.

    b. Do all projects require the exact size of this project?

       No, as Section 02665, Part 1.B.4.(2) states “similar liner systems”.

35. The survey data for the “Ground Surface” of the borings is critical to the design for the air release, hydrostatic uplift, and high water check valves. In the Nodarse Geotechnical Report, Terracon Project No. H1115424 dated August 8, 2012 - Borings B-24 through B-29 appear to be drilled around the berms of the existing “Reject Storage Pond”. All borings data (Appendix A) and water table information (pg 19&20) are based upon “Depth Below Ground Surface”. However, no survey data was provided for Borings B1 – B23 (B-24 B-29 not even listed) on pg 6&7 of the Report.

    Attachment B, the Geotechnical Engineering Report, is an Attachment to the Contract Documents for purposes of reference. It is not part of the Contract Documents. The following is for informational purposes only as the questions are in reference to an Attachment and not the Contract Documents.

    There was no topographic survey performed in relation to the Geotechnical Analysis in the Reject Storage Pond. As denoted in Section 4.10 of the Geotechnical Analysis, the analysis within the existing Reject Storage Pond was limited to determining the presence of an existing clay liner and the leakage testing of the pond.

    a. Please provide the survey data for the ground surface of all boring locations.

       Reference Addendum 8, Bidder Question 33.

b. Pg 6 & 18 – SHGWL is shown at +78 but this does not “appear” to match the 3 foot below ground surface statements in the Report but no survey data given to verify AND AB-1 to AB-6 & B1-B23 appear to indicate 0.5-2.5 feet.

This is a technical question with respect to the content included within an Attachment to the Contract Documents. Responses to technical questions pertinent to the Attachment will not be provided as the material is not part of the Contract Documents.

c. Pg 19& 20 / Appendix A – In the boring data conducted in FEB 2012, initial water tables varied from 3 to 7.5 below land surface (bls). If the existing ground surface at the berms is EL 94 (??), and the bottom of the liner is at EL 86 (Exhibit A-42) then that would be a minimum of 5 feet of hydrostatic head (EL 94 – 3 feet bls to SHGWL = EL 91; liner bottom at EL 86. 2 feet of earth may or may not be sufficient to ballast the liner system down. But no survey data provided.

No survey was performed. This is a technical question with respect to the content included within an Attachment to the Contract Documents. Responses to technical questions pertinent to the Attachment will not be provided as the material is not part of the Contract Documents.

36. Detail 4 Sheet C-150 indicates the base of the check valve to be a minimum of 4” inch above the concrete.

a. What is the design water elevation in the pond?

The maximum design water level in the Reject Storage Pond is elevation 91.0.

b. Does that design assume SHGWL is flowing into the pond?

Reference the response to Addendum 8, Bidder Question 8.b.

c. If the design effluent water elevation in the pond is higher that SHGWL then the valve closes and the liner design has to accommodate the hydrostatic uplift (but no survey data provided). If the valve is open, and SHGWL enters the pond; then the design capacity pond is potentially reduced, is that accounted for in the design of the pond/effluent treatment system process?

Reference the response to Addendum 8, Bidder Question 8.b.

37. There is no UV resistance requirement or warranty life on the material (PVC or the non-woven). Is there a specific design exposure life on either material?

    Reference Specification 02665-6, Part 1.E regarding the warranty for the PVC Geomembrane Liner.

38. Pg 19&20 show how rapidly the water levels rise in the RIB when the REJECT POND IS FULL (rising 2 to 6 feet in a single day). Given the Kh (25 ft/day) and Kv (15 ft/day) on pg 19 of the Report, is a 250 mil Geocomposite sufficient? The SHGWL, loading, actual soils in the ponds will dictate spacing and final design. However, the report indicated “significant leakage”; however, no hydraulic testing of the actual soils within pond were conducted. The Soil Survey Exhibit A-2 appears to show AB in soil type 3 while the pond is in soil type 34. Both “Fine Sands” but Type 34 has a higher potential permeability (Exhibit A-41).

    Is it expected that the soils within the pond be tested prior to final design?

    Reference the response to Addendum 8, Bidder Question 33 regarding the scope of the Geotechnical Analysis in the Reject Storage Pond. The Geotechnical Analysis is an Attachment to the Contract Documents. This question includes technical content with respect to the Attachment. Responses to technical questions pertinent to the Attachment will not be provided as the material is not part of the Contract Documents. It is expected that the General Contractor, and Liner System Engineer, perform the necessary investigations and services for the Liner System Engineer to perform the responsibilities noted in Specification Section 02665.

39. Reference Bid Package A Drawing D-500-305 and D-304 Detail 9 - The 4-GS-1 pipe running on the Pretreatment Structure Loading Area Deck is shown supported by Pipe Support D-304 Detail 9; however the detail is blank. Please provide detail or advise alternative method to support this pipe.

    Reference Addendum 6, Bidder Question 118.

40. Reference Addendum No.6 Bidder Question No. 176 – It has been noted by suppliers that this is a very rare spec with a high cost and possible longer duration lead times. Would a thicker mil spec for factory coatings be acceptable in lieu of the specified sheet coating application specified in Section 9954?

    The application of sheet coating to buried valves is eliminated from the Work. Bid Packages A and B, Specification Section 09954, Part 3.C is revised as follows;

C. Applying Sheet Coating to Buried Valves

1. Wrap flanges and other irregular surfaces with wax tape or moldable sealant. Press tightly into place leaving no voids underneath and a smooth surface under coating for polyethylene sheet.

2. Wrap with a flat sheet of polyethylene. Place the sheet under the valve and the flanges or joints with the connecting pipe and fold in half. Extend the sheet to the valve stem and secure the sheet in place with 2-inch-wide plastic adhesive tape. Apply a second layer and secure with tape. Make two complete wraps, with no exposed edges, to provide a watertight corrosion barrier. Secure the sheets with tape around the valve stem below the operating nut and around the barrel of the connecting pipe to prevent the entrance of water and soil. Place concrete anchor and support blocks after the wrap has been installed.

41. Figure 2 in section 01040 of Bid Package A shows a legend listing out Substantial D and Substantial E work. Addendum 1 added requirements for Substantial C, but we have not seen anything further for D and E. Please provide these additional requirements / clarifications.

    Please reference Bid Package A, Specification Section 01040 Part D.1.i.(1) and Figures 1 and 2 illustrating the various BNR Substantial Completions. Part D.1.i.(3) and Figures 1 and 2 lists the substantial completions for Tertiary Treatment. There is not a Substantial E for the Tertiary Treatment. The elimination of the relocation of the Process 470 Disk Filter from Work will not alter Substantial Completion Part D, per Part D.1.i.(3)(g), other than the Contractor is responsible to relocate the existing Pumps to accommodate that Work, as noted in Addendum 1, Drawing D-360-102.

42. Bid Package A: Are there existing interior coatings on BNRs 1-4 (Phase I/II) and BNRs (Phase III), see table on 09900-32? If so, please provide the manufacturer, product name, and thickness of the existing coating(s).

    Yes. The existing Phase I/II and Phase III BNRs are coated with a coal tar epoxy from the top of wall to the interior finished floor of the tanks. Orange County Utilities does not have the product name and thickness of the existing coatings to provide.

43. Bid Package A: Are there record drawings for the existing BNRs that can be provided for a more accurate takeoff?

    Record Drawings for the existing BNRs are not available to be provided to the Bidders.

44. Bid Package A: How do the Pretreatment Structure Coating notes found on drawing S-001 relate to System No. 33 described on pg. 09900-12 of the project specifications?

    It is not, please reference Addendum 8, Bidder Question 31.

45. Please clarify if we are required to include flood and wind coverage in our builder's risk policy. These particular perils are listed as excluded "causes of loss" in Exhibit D part B.1.g. The need to include these coverages could be interpreted either way, so we are asking for a clarification to eliminate any uncertainty and insure that all bidders include the necessary costs.

    Purchasing Question: We would require wind coverage in the builder's risk policy but will waive the flood coverage.

46. Bid Packages A & B: Per the engineer's response to question 137 in Addendum No. 6, we would like to clarify that it is the engineer and owner's intent for the contractors to hand dig within 7' of existing structures. This note will add significant cost to this project, and likely extend the duration. There are multiple instances in which this note affects production within the scope of work. Take a moment to look at SEC Clarifiers 1-2 and 3-4, the tie in's to the RAS-1 lines are 10-12'+ below grade, per note 2 on sheet S-250-101, the engineer is requiring sheeting and tie backs to protect this structure during the excavation. Is it our understanding, that we can drive sheets underneath a launder wall, with no clearance, within 7' of an existing structure, but cannot excavate? We would ask that this note be deleted, as this is a means and methods decision by the contractor, as the contractor already assumes all risk for existing structures and processes within the scope of work.

    Noted. Orange County Utilities rational behind inserting the note is for the congestion in certain areas that will likely require hand excavation due to close proximity to existing facilities; pipeline and ductbanks. General Note 26 on Drawing G-004 and G-002 in Bid Packages A and B respectively is revised as follows; 26. ~~IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INCLUDE IN THE BID TO EXCAVATE BY HAND ALL AREAS.~~ THE CONTRACTOR IS ADVISED THAT HAND DIGGING MAY BE THE ONLY METHOD AVAILABLE TO AVOID PIPELINE AND ELECTRICAL DUCTBANK DESTRUCTION IN MANY CONGESTED AREAS. ***(Attachment)***

47. Bid Package A: We asked question 75 a. in Addendum 6, with the response saying that we should be compliant with Dewatering Permits. Reject water will not be able to be permitted for surface water discharge without treatment, therefore, the engineer and owner will need to give an answer regarding the desired discharge location into the existing plant. Please confirm that the Reject Pond must be pumped back into the plant for treatment, and please determine a location or process for discharge.

    Reference Addendum 7, Bidder Question 40, which noted the following; At the time in which the Contractor determines to commence work within the Reject Pond if there is Non-Compliant Effluent within the Reject Pond, then it is to be pumped to the Phase III Preliminary Treatment Facility (Process 300) for treatment.

48. Bid Package A: Can the water that is currently contained in the ribs be transferred to existing adjacent ribs so that we can perform the modifications to those ribs?

    Yes, so long as Orange County Utilities EWRF Operations staff permits it at the time the Contractor requests to perform it by submittal of a Construction Administration Request (CAR) form through the RPR and that the current FDEP Operating Permit conditions are not violated due to the Contractor's transfer of water from one RIB to another, e.g. 3-foot maximum operating depth per FAC Rules.

49. During Phase IV construction the contractor pumped groundwater directly into the RIBS and Wetlands. The RIBS are designed to handle excess water and distribute it back into the ground accordingly. Please reconsider allowing the contractors to use the existing RIBS as a means of groundwater discharge during construction of the facility, so long as it meets the water quality standards set forth by the Permits issued by FDEP/SFWMD, and as long as the capacity needed by the facility is not exceeded. It will be the lowest cost option, and provide the least amount of environmental impact for the owner and the contractor.

    It is incorrect in that during the Phase IV-C Improvements that dewatering water was discharged into either into the RIBs or the EWRF's man-made wetlands. The EWRF is in close proximity to its current rated permitted disposal capacity. The EWRF is reliant upon the RIBs in cases of either process upset or limitations in the alternative effluent disposal locations available. Another matter is the current rated capacity of the RIBs and necessity to count on that capacity for Operational Permit compliance. Orange County Utilities is unable to provide the Contractor the option of the

RIBs for discharge of ground water dewatering operations because of these, and additional conditions.

50. Bid Package A: Sheet C-124, 42”x42” Wet Tap on RS-1 Pipe. Please confirm that the Existing 42” RS-1 is Ductile Iron and not PCCP Pipe. Size on Size Taps are not available for PCCP pipe.

    There is not a 42” RS-1 tie in on Drawing C-124. Based upon the question presented it is unclear of the location of the tie-in in question.

51. Bid Package A: Sheet C-121, 42”x36” Wet Tap on SE-1 Pipe. Please confirm that the Existing 42” SE-1 is Ductile Iron and not PCCP Pipe. It will be difficult to get a Tapping Sleeve for a 42”x36” on PCCP.

    The existing 42” SE at the 36X42 wet tap on Fitting 123, zone A5, is ductile iron.

52. Bid Package A: Please confirm that the only Existing PCCP Pipe on this site that we are connecting to is the RW-1, which is being relocated for Clarifier 11 Construction.

    The only known PCCP on the property that is proposed to have a new connection is the 42” RW on Drawings C-126 and C-127.

53. Bid Package A: Spec Section 1025-4 Pay Item D.1.a.7 – Relocate Existing Disk Filter Needs to be Removed to Reflect that This work is No Longer Required.

    Bid Package A, Specification Section 01025-4, Part D.1.a.(7) is revised as follows:

    (7) ~~Relocate Existing Disk Filter, Process 470. This includes all labor, materials, supplies and equipment for demolition and relocation of the existing disk filter including but not limited to valves, piping, electrical and controls, concrete slab, staircases and any other elements of this process.~~

54. Bid Package A: The following questions are in regards to the System Start-Up and System Testing, Specification 01664.

    A special meeting to discuss System Start-Up & Testing

a. We are making assumptions regarding the System Start Up and System Testing procedures that will be required to meet specification 01664. We request a System Start Up / Testing meeting with the engineer (and/or plant operations) prior to the bid, to review Start-up/Testing requirements, in order to eliminate assumptions, and provide the owner with the most cost efficient proposal. We request the meeting for August 25th.

No, Orange County Utilities is not able to meet with any Bidder during the advertisement process to discuss the Contract Documents.

Questions pertaining to System Start-up

b. Reference page 01664-8, Item E. Temporary Pumping, section 3., that states, "The contractor is responsible for temporary pumping systems as required to simulate the process performance…"

Also Reference page 01664-9, Item F. Temporary Pumping and Piping Facilities for BNR and Secondary Clarifier Treatment, sub section 2. states "The contractor shall fill the tanks with reclaimed water and recirculate it within the processes at the prescribed flow rates…."

i. In order to simulate flows in a given train, we assume we pump from a down-stream clarifier, up-stream to the First anoxic basin, in order to simulate. The flow will gravitate back to the clarifier. *Please confirm*. (Note: If these are not the points for recirculation please provide them.)

Reference Addendum 8, Bidder Question 3. Yes, the flow from the Fermentation Basins will flow by gravity to the Clarifiers.

ii. The flow rates that require simulation are indicated in the flow diagram tables on drawing sheets, G -007 and G-008. Please confirm.

Reference Addendum 8, Bidder Question 3.

iii. The flow rates indicated on drawing G-007 and G-008 can be divided by two to simulate the tests. For example, the average daily flow to Phase I/II BNR is 8 MGD. When testing the south half of Phase I/II BNR, the simulated average daily rate would be 4 MGD.

Correct

iv. Per section 01664 we are testing the south half of Phase I/II BNR. However it does not appear that the fermentation piping to the first anoxic basin will allow this. Please confirm that flows do not need to circulate through the fermentation basin.

There is isolation capacity in the Process 210 Fermentation Basin. Recirculation flow is to be returned to the Fermentation Basin.

c. Reference 01664-8, item B. Supplemental Carbon. Please provide the average amount of carbon that is estimated for treatment (gallons of carbon per gallons of flow)

In May 2012, AECOM prepared Technical Memorandum: Supplemental Carbon Analysis and Present Worth Analysis includes the following estimated Supplemental Carbon Feed Rates (gpd) for the rerated capacities on an annual average flow (AADF) basis for the following BNRs;

- *Phase I/II at 8 MGD AADF: 250 gpd*
- *Phase III at 9 MGD AADF: 300 gpd*
- *Phase IV is being rerated upto 7 MGD. It is a Modified Step Feed BNR versus the others as 5 Stage Bardenpho BNRs. The TM determined Supplemental Carbon was not required for rerating to 7 MGD AADF, albeit SP-1 piping will be routed to Phase IV BNR for additional flexibility as part of Phase V.*

Please note the Contractor is responsible to supply the MicroC2000 product until BNR Process Substantial Completion. The information provided herein is for informational purposes only as response to the Bidder's question. The amount of MicroC2000 required to reach BNR Process Substantial Completion may vary from the information provided herein based on the TM.

Questions pertaining to System Testing

d. Reference page 01664-9, Item F. Temporary Pumping and Piping Facilities for BNR and Secondary Clarifier Treatment, sub section 4., states "During the filling and seeding period, the Contractor shall be responsible to provide temporary piping and pumps in order to circulate mixed liquor from the 2nd anoxic tanks to the fermentation tanks at varying rates…" Please confirm that, after pumping from the 2nd Anoxic tank to the Fermentation Tank, the system piping will allow flow to gravitate back through the system (i.e. back to the 2nd Anoxic Tank.)

Yes, the WRF is constructed to allow flow by gravity from Fermentation to 2nd Anoxic.

e. Reference page 01664-9, Item F. Temporary Pumping and Piping Facilities for BNR and Secondary Clarifier Treatment, sub section 5., states "Once seeding is completed the system will be brought into service for the 21 – day System Testing duration." Also Reference page 01664-14, 2. Specific Requirements for the Biological Nutrient Removal Processes…, parts b & c.

i. Please confirm that the 21 day system testing duration is comprised of

7 days	First stage of data collection to demonstrate the removal of BOD and total suspended solids.
7 days	One week hold on testing after the first stage
7 days	Second stage of testing to demonstrate biological nutrient removal.

That is partially correct, reference Specification Section 01664 for the details not included in this summarized question.

ii. What is the purpose for waiting the one week between stages 1 and 2?

Process Stabilization.

iii. Please confirm that, during the 21 day system test, the BNR train will be on-line (influent will be introduced into the system, and contractor re-circulation is not required).

Correct, recirculation is not required at that stage.

iv. Please confirm that, if the effluent does not meet quality standards, the effluent can be recirculated through the system via "plant piping and controls."

This question is without citation to Specification Section 01664. Confirmation cannot be provided for such a question.

E. ADDITIONAL INFORMATION:

1. Reference Bid Package A. The following revisions were made to the Drawings:

a. Process 565 SE Eff Reject Outfall & Intake Structure Drawings D-565-101 and D-565-301 – The scales for both drawings have been revised. **(Attachment)**

b. Process 580 Chlorine Contact Tank Drawing D-580-301: The elevation of the top of the structure was revised to match the Structural Drawings (Bid Package A Drawings S-580-102 and S-580-301). **(Attachment)**

c. Process 580 Chlorine Contact Tank Drawing D-580-302: The elevation of the top of the structure was revised to match the Structural Drawings (Bid Package A Drawings S-580-102 and S-580-301) and the elevation of existing grade was corrected. Additional changes to the Drawing were made regarding the elimination of the Process 470 Disk Filter relocation from the Contract per Addendum 1, General Information 2, including deletion of 24 FE-1 and associated slide gate, deletion of 18 SE-1). **(Attachment)**

2. The Concrete Coating Schedule in Bid Package A, Specification Section 09900-31, Part 3.L.11 is revised as follows for the Preliminary Treatment Structure;

Process Number(s)	**Process Name**	**Exterior**		**Interior**
		Below Grade	**Above Grade**	
500	Preliminary Treatment Structure	N/A	~~N/A~~ Reference Architectural Drawings	System 34 (Floors) Reference Structural & Architectural Drawings

3. Bid Packages A and B, Specification Section 09954, Part 3.A is revised as follows;

~~B. Application of Moldable Mastic Filler to Irregular Adjacent Surfaces~~

~~When the adjacent joints are bell-and-spigot or mechanical joints and any associated welding specifications do not require an external full fillet weld, apply a moldable mastic filler (per Section 15050) at the step-down area prior to the application of the sheet encasement and tape.~~

F The Bidder shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of the bid.

G. All other terms and conditions remain the same.

Receipt acknowledged by:

_____ _____

Authorized Signature Date Signed

_____

Title

_____

Name of Firm

BOARD OF COUNTY COMMISSSIONERS
ORANGE COUNTY, FLORIDA

ADDENDUM NO. 8
IFB NO. Y14-748
ORANGE COUNTY EASTERN WATER RECLAMATION FACILITY
PHASE V AND CENTRIFUGE DEWATERING IMPROVEMENTS

SPECIFICATIONS
BID PACKAGE A

SECTION 11281 FABRICATED STAINLESS STEEL SLIDE GATES

PART 1 - GENERAL

A. Description

This section includes materials, installation, and testing of fabricated stainless steel slide and weir gates, open channel or wall mounted conforming to AWWA C561 and as supplemented herein.

B. Submittals

1. Submit shop drawings in accordance with the General Conditions, Section 01300 and the following.

2. Submit dimensional drawings.

3. Submit manufacturer’s catalog data and detail drawings showing slide gate parts and described by material of construction, specification (such as AISI, ASTM, SAE, or CDA), and grade or type. Show coatings. Identify each slide gate by tag number to which the catalog data and detail sheets pertain.

4. Submit calculations to show that gates, stems, and lifts meet the specifications.

5. Submit manufacturer's installation instructions.

C. Manufacturer's Services

Provide equipment manufacturer's services at the jobsite for the minimum labor days listed below, travel time excluded:

1. Two (2) labor days for each service listed in the subsection on "Service Conditions" to check the installation and advise during start-up, testing, and adjustment of the equipment.

2. Two (2) labor days (one (1) day for each shift) to instruct the County's personnel in the operation and maintenance of the equipment. If there are difficulties in operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no cost to the Owner.

3. Refer to Section 01010 for additional requirements.

PART 2 - MATERIALS

A. Manufacturers and Models

1. Type 3 slide gates shall be of the self-contained upward-opening type with guides for embedding in concrete. Type 3 slide gates shall be Fontaine Series 25, Whipps Series 921, or WACO Environmental Products Series 8500.

2. Type 4 slide gates shall be of the self-contained upward opening type designed to mount on the face of concrete walls. Type 4 slide gates shall be Fontaine Series 20, Whipps Series 923, or WACO Environmental Products Series 8500.

B. Weir Gates

Weir gates shall be of the self-contained downward-opening type designed to mount on the face of concrete walls. Weir gates shall have rising stems. Weir gates more than 5 feet wide shall have double stems. Design the gate to be lowered for opening and to be raised for closing. Gate design and materials of construction shall conform to the descriptions of slide gates. Manufacturers: Fontaine, Whipps, or WACO.

C. Slide Gate Design

1. Slide gates and appurtenances shall comply with AWWA C561, except as modified herein.

2. Provide slide gates complete with gates, guides, frames, baseplates, seats, stems, stem guides, seals, actuators, and anchor bolts. Design slide gates for minimum seating and unseating heads of 10 feet. Measure the seating and unseating heads from the top surface of the water to the centerline of the disc.

3. Under the design seating and unseating heads, the leakage shall not exceed 0.05 gpm per foot of wetted seating perimeter.

4. Slide gates shall have rising stems.

5. Provide offset bevel box operating system for gates there the centerline elevation of handwheel or crank is greater than 48-inches from floor elevation. Centerline of offset bevel box operating system crank shall be 36-inches from floor elevation.

6. Provide extension for actuator to place handwheel interior to new guardrails where guardrail blocks access to actuator.

D. Frames for Self-Contained Slide Gates

Design frames to be suitable for bolting to concrete walls or for grouting into channel recesses as noted herein. Furnish flush inverts for wall-mounted gates and flush inverts for channel-mounted gates as noted herein.

E. Guides

1. The guides shall extend in one continuous piece from the gate invert to form posts for crank operated floor stand. The extended guides or posts shall require no additional reinforcing to support the operator. The guide frames shall be fabricated from plates and angles suitable for the loads imparted to it by the water head and operator in accordance with design guidelines and safety factors herein. All stainless steel frame components shall be a minimum of 1/4-inch thick.

2. Provide a flush invert at the bottom of the frame. Provide a rubber insert to function as a seating surface for the gate disc.

3. Provide rubber J-bulb seals or self-adjusting UHMWPE seals along the sides of the gates.

4. Provide replaceable polyethylene bearing strips in the guides. Provide strips along both sides of the guide channels containing the disc to insure no metal to metal surface contact. Alternatively, mount the replaceable polyethylene bearing strips on the disc.

5. Provide rubber or UHMWPE J-bulb seals or self-adjusting UHMWPE seals along the top of the gate for submerged applications.

6. All adjustable J-bulb seals shall be secured by stainless steel retainer bars of the same alloy as the frame.

7. Rubber J-bulb seals shall have a fluorocarbon film vulcanized and bonded to the sealing surface of the bulb. The film shall be minimum 0.060-inch thick Buckhorn Rubber abrasion-resistant Fluorocarbon Film No. 4508 or equal. Test fluorocarbon film for adhesion bond per ASTM D 413 using either the machine method or the

deadweight method. There shall be no separation between the fluorocarbon film and the rubber when subjected to a load of 30 lbs per inch of width.

F. Disc

1. Fabricate the disc using stainless steel flat plate with stainless steel structural or formed members welded to the plate. Provide disc components with a minimum material thickness of 1/4-inch.

2. The disc shall be a one-piece plate, reinforced with ribs so that the disc will not deflect more than 1/720 of the gate span or 1/16-inch, whichever is less, at design head. Attach reinforcing ribs to disc by welding; do not use bolting. Reinforcing ribs shall extend into the guides such that they overlap the seating surface of the guide. Vertical reinforcing ribs can also be provided adjacent to the guides to ensure deflection remains within the specified limits. Design the disc so that all surfaces are free of metal-to-metal contact with the frames.

G. Actuator Support Yoke for Self-Contained Slide Gates

Attach the actuator support yoke to the extensions of the guides. Provide two angles bolted to opposite sides of the guide extensions. Mount the actuator on a plate bolted to the support yoke. Maximum deflection of the yoke shall not exceed 1/4-inch when subjected to a load induced by an 80-pound pull on the actuator or 1/360 span when subjected to a load induced by a 40-pound pull on the actuator, whichever is less.

H. Stems and Stem Guides

1. Lifting stems shall be one piece, with a minimum diameter of 1-1/2 inches. The stem shall withstand an actuator effort of 80-pounds without buckling, assuming the critical buckling load as determined by using the Euler Column Formula with C = 2.0. The stem shall have a minimum diameter of 1-1/2 inches. The threaded portion shall have machine cut or machine rolled, full depth Acme threads, polished to a 16 microinch finish or better. Support the stems with stem guides such that the L/R ratio for the unsupported part of the stem does not exceed 200.

2. The stem connection to the disc shall be either the clevis type, with structural members welded to the slide and containing two bolts to secure the stem to the disc, or a threaded and bolted or keyed thrust nut supported in a welded nut pocket. The pocket shall be capable of withstanding a load of 80-pounds on the actuator.

3. Provide tandem stems and actuators when the gate width is more than twice the gate height and for weir gates 5 feet or more in width.

I. Materials of Construction

Materials of construction shall conform to the requirements listed below:

Component	Material	Specification
Guides	Stainless steel	ASTM A240 or A276, Type 316L
Disc, yoke	Stainless steel	ATSM A240 or A276, Type 316L
Stems, stem guides, bushings, pivot pin	Stainless steel	ASTM A276, Type 316
Bolts, fasteners (including anchor bolts)	Stainless steel	ASTM A193, F593 or F594; Grade B8M or ASTM A276, Type 316
Lift nut	Bronze	ASTM B62 or ASTM B584, Alloys C83600, C83800, or C86500
J-bulb seals, flush bottom seals	Rubber	ASTM D2000, Grades BC610, BC611, BC612, BC613, BC614, or BC615
Floor Stand	Stainless steel or Aluminum	ASTM A240, Type 316L; or Tenzaloy aluminum
Hand Wheel	Aluminum	ASTM B 209 or B 308, Alloy 6061-T6 or 6063-T6

J. Actuators

1. Provide manual actuators unless otherwise indicated in the drawings. Where possible provide Acme threaded handwheel lifts without gear reduction for gates having design seating heads 10-feet or less. Provide a flanged lift nut to engage the threaded portion of the stem. Support the lift nut on nonmetallic thrust washers or

ball or roller bearings. Provide manual crank-operated lift with gear reduction for gates having design seating heads greater than 10 feet. Maximum pull required to open the gate shall not exceed 40-pounds. Support crank-operated lift nuts only on ball or roller bearings. The crank handle shall be removable. Provide a 2-inch-square nut configured to allow the use of a portable electric actuator.

2. Provide a graduated clear plastic stem cover to show the gate position in increments of 1/4-inch. Provide vent holes to prevent condensation.

K. Floor Stands

1. Design crank-operated or handwheel-operated floor stand hoists to permit gate operation with 40-pounds of maximum effort under the head conditions noted in the drawings.

2. Provide floor stand hoists that can also accommodate a portable electric actuator.

3. Coat cast iron floor stands per Section 09900, System No. 10. All stainless steel weld burn and weld slag shall be mechanically passivated in accordance with ASTM A380 to provide a uniform finish.

L. Spare Parts

1. Provide the following spare parts for each size of slide or weir gate:

Quantity	Description
1	Standnut for each size
4	Stem guides of each type and size
1 set	self-adjusting seal and Flush bottom seals for each type and size gate
1	Stem Covers for each type and size gate
5	Tubes of Recommended Grease

2. Pack spare parts in a wooden box; label with the manufacturer's name and local representative's name, address, and telephone number; and attach list of materials contained within.

PART 3 - EXECUTION

A. Slide Gate Designations and Designs

1. Provide the following stainless steel slide gates:

Tag	Type	Opening Width (ft)	Opening Height (ft)	Bottom of Opening EL	Top of Opening EL	Deck EL
231-SG-1	Wall Mounted	3'-0"	3'-0"	86.00	89.00	96.50
335-SG-1	Wall Mounted	2'-6"(1)	2'-6"(1)	82.75	85.25	99.00
336-SG-1	Wall Mounted	2′-6"(1)	2'-6"(1)	82.75	85.25	99.00
360-SG-1	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-2	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-3	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-4	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-5	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-6	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
360-SG-7	Wall Mounted	4'-0"	4'-10"	81.00	85.83	88.00
562-SG-1	Wall Mounted	3′-6″(1)	3′-6″(1)	74.05	77.55	95.00
563-SG-1	Wall Mounted	~~3′-0″(1)~~ 5′-0″	~~3′-0″(1)~~ 5′-0″	~~74.82~~ 73.82	~~77.82~~ 78.82	95.00
564-SG-1	Wall Mounted	2′-6″(1)	2′-6″(1)	75.20	77.70	95.00
564-SG-2	Wall Mounted	2′-6″(1)	2′-6″(1)	75.20	77.70	95.00
565-SG-1	Wall Mounted	3′-6″(1)	3′-6″(1)	81.50	85.00	94.00
500-SG-1	Channel Mounted	5'-0"	8'-0"	102.83	112.00	112.00
500-SG-2	Wall Mounted	5'-0"	8'-0"	102.83	112.00	112.00
500-SG-3	Wall Mounted	5'-0"	8'-0"	102.83	112.00	112.00
500-SG-4	Wall Mounted	5'-0"	8'-0"	102.83	112.00	112.00

Tag	Type	Opening Width (ft)	Opening Height (ft)	Bottom of Opening EL	Top of Opening EL	Deck EL
500-SG-5	Wall Mounted	5'-0"	8'-0"	102.83	112.00	112.00
500-SG-6	Channel Mounted	5'-0"	8'-0"	102.83	112.00	112.00
500-SG-7	Channel Mounted	5′-0″	8′-0″	102.83	112.00	112.00
500-SG-8	Wall Mounted	5′-0″	8′-0″	102.83	112.00	112.00
500-SG-9	Wall Mounted	5′-0″	8′-0″	102.83	112.00	112.00
500-SG-10	Wall Mounted	5′-0″	8′-0″	102.83	112.00	112.00
500-SG-11	Wall Mounted	5′-0″	8′-0″	102.83	112.00	112.00
500-SG-12	Channel Mounted	5′-3″	8′-0″	102.25	112.00	112.00
500-SG-13	Channel Mounted	5'-0"	8'-0"	102.25	112.00	112.00
500-SG-14	Channel Mounted	5'-0"	8'-0"	102.25	112.00	112.00
500-SG-15	Channel Mounted	5'-0"	8'-0"	102.25	112.00	112.00
500-SG-16	Channel Mounted	5'-0"	8'-0"	102.25	112.00	112.00
500-SG-17	Channel Mounted	5'-3"	8'-0"	102.25	112.00	112.00
580-SG-1	Wall Mounted	4′-0″(1)	4′-0″(1)	~~69.62~~ 72.00	~~73.62~~ 76.00	~~87.00~~ 85.00
~~580-SG-2~~	~~Wall Mounted~~	~~2′-0″(1)~~	~~2′-0″(1)~~	~~76.00~~	~~78.00~~	~~87.00~~
580-SG-3	Wall Mounted	4′-0″(1)	4′-0″(1)	~~72.00~~ 69.62	~~76.00~~ 73.62	~~87.00~~ 85.00

(1) Dimension corresponds to the nominal size of a pipe.

B. Weir Gate Designations and Designs

1. Provide the following stainless steel weir gates:

Tag	Type	Opening Width (ft)	Opening Height (ft)	T/Wall EL	T/Weir Gate EL	Deck EL
221-WG-1	Wall Mounted	~~10'-6"~~ 10'-0"	3'-0"	93.00	94.75	~~96.88~~ 97.00
222-WG-2	Wall Mounted	~~10'-6"~~ 10'-0"	3'-0"	93.00	94.75	~~96.88~~ 97.00
223-WG-3	Wall Mounted	~~10'-6"~~ 10'-0"	3'-0"	92.96	~~93.60~~ 94.75	97.00
224-WG-4	Wall Mounted	~~10'-6"~~ 10'-0"	~~2'-8"~~ 3'-0"	93.13	~~93.60~~ 94.75	97.00
231-WG-1	Wall Mounted	8'-0"	~~2'-8"~~ 3'-0"	92.50	93.00	96.50
335-WG-1	Wall Mounted	10'-0"	4'-0"	95.00	~~95.33~~ 96.40	99.00
335-WG-2	Wall Mounted	10'-0"	4'-0"	95.00	~~95.33~~ 96.40	99.00
336-WG-1	Wall Mounted	10'-0"	4'-0"	95.00	~~95.33~~ 96.40	99.00
336-WG-2	Wall Mounted	10'-0"	4'-0"	95.00	~~95.33~~ 96.40	99.00
360-WG-1	Wall Mounted	8'-0"	3'-0"	85.00	86.53	88.00
360-WG-2	Wall Mounted	8'-0"	1'-8"	85.00	86.53	88.00
360-WG-3	Wall Mounted	8'-0"	3'-0"	85.00	86.53	88.00
561-WG-1	Wall Mounted	8′-0″	3′-0″	82.00	85.00	95.00
562-WG-1	Wall Mounted	9′-0″	1′-6″	86.00	87.50	95.00
563-WG-1	Wall Mounted	9′-0″	~~1′-6″~~ 2′-0″	86.17	~~87.50~~ 88.17	95.00
564-WG-1	Wall Mounted	7′-0″	2′-0″	86.37	88.37	95.00
564-WG-2	Wall Mounted	7′-0″	2′-0″	86.37	88.37	95.00
500-WG-1	Wall Mounted	~~10'-0"~~ 8'-8"	3'-0"	104.75	104.75	112.00
500-WG-2	Wall Mounted	~~10'-0"~~ 8'-8"	3'-0"	104.75	104.75	112.00
500-WG-3	Wall Mounted	~~10'-0"~~ 8'-8"	3'-0"	104.75	104.75	112.00
500-WG-4	Wall Mounted	~~10'-0"~~ 8'-8"	3'-0"	104.75	104.75	112.00

C. Welding

Welder qualification shall comply with AWS D1.6 Welding rod and electrodes shall comply with AWS A5.4.

D. Painting and Coating

Coat cast-iron and steel surfaces above deck level, including actuators and floor stands, per Section 09900, System No. 10. Apply prime coat at factory. Color of finish coat shall be provided by the OWNER.

E. Installation

1. Install epoxy anchors for wall mounted gates using templates. Epoxy anchors shall be Type 316 stainless steel threaded rod adhesive anchors. Epoxy adhesive shall comply with ASTM C881, Type IV, Grade 3, Class B or C. Adhesive shall be Rawl Power-Fast, Hilti HIT RE 500, Simpson Epoxy-tie with SET epoxy, or equal. Epoxy anchor assemblies shall be ICBO approved.

2. Comply with AWWA C561, paragraph 4.6.

F. Field Testing

1. Operate each slide gate through two complete cycles. Gates shall operate without sticking or binding.

2. Determine the pulling force required to turn the handwheel with a torque wrench. Pulling force required shall be less than the limit specified.

3. Fill channels to which the gates are attached with water. Measure leakage through each slide gate. Measure the actual field seating and unseating heads. The allowable leakage shall be as specified above. If the leakage rate is exceeded, adjust or replace the gate and retest until it passes.

G. Contract Closeout

Provide in accordance with Section 01700.

H. Warranty

1. The Manufacturer shall furnish a written warranty covering materials and workmanship for the equipment provided for a period of three (3) years. The warranty period shall begin at the date of substantial completion

of the respective process in which the equipment is installed.

2. The manufacturer shall furnish, deliver, and install new parts to replace the defective parts. The manufacturer shall furnish all supervision, labor, equipment, and materials to repair or replace components which have failed as defined by the warranty at no cost to the Owner.

3. Leakage shall be no more than that allowed by the AWWA C561 Standard during the guarantee period.

4. Door (disc) shall be free of sticking or binding as judged by the Engineer (move freely via operator provided) with no exercising required. Gate operators are to be warranted by the operator manufacturer.

I. Additive Warranty

Reference Specification Section 01025 for two (2) years in additional warranty duration to warranty stated above.

J. Certification

Provide a written certification from the equipment manufacturer that the equipment has been properly installed according to the plans, specifications and manufacturer's specifications, and that the equipment is operating normally. Make all necessary corrections and adjustments at no additional cost to the Owner.

END OF SECTION

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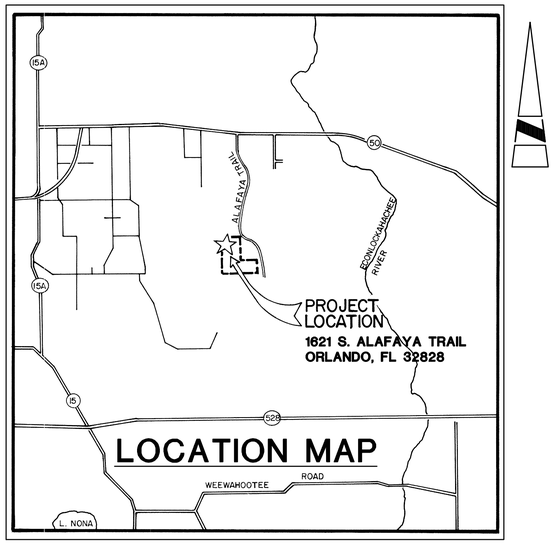
BOARD OF COUNTY COMMISSSIONERS
ORANGE COUNTY, FLORIDA

ADDENDUM NO. 8
IFB NO. Y14-748
ORANGE COUNTY EASTERN WATER RECLAMATION FACILITY
PHASE V AND CENTRIFUGE DEWATERING IMPROVEMENTS

DRAWINGS
BID PACKAGE A



FLOW STREAM IDENTIFICATION

ABBREVIATIONS	DESCRIPTION	MATERIAL	PIPE SIZE (INCHES)	SPEC SECTION	INTERIOR LINING	WORKING PRESSURE (PSIG)	TEST PRESSURE (PSIG) (1)	TEST FLUID	EXPOSED COATING SYSTEM	SUBMERGED COATING SYSTEM	BURIED COATING SYSTEM	COLOR	NOTES/REMARKS
AIR–1	PROCESS AIR	DI	4" AND UP	15240	UNLINED, SEE SPEC 15240	10	25	AIR	N/A	N/A	N/A	–	1,2,4,5,6,7,8,9
AIR–2	PROCESS AIR	SST	1" AND UP	15276	N/A	10	25	AIR	N/A	N/A	N/A	GREEN *	1,2,4,5,6,7,8,9,10
DR–1	DRAIN	DI	4" AND UP	15240	CERAMIC EPOXY LINED	G	SECT 02530	NPW	10	1	SECT 15240	BLACK *	2,5,6,7,9
DR–2	DRAIN	PVC	3" AND LESS	15290	N/A	G	SECT 02530	NPW	41	N/A	N/A	BLACK *	2,5,6,7,9
NPW–1	NON–POTABLE WATER	PVC	3" AND LESS	15290	N/A	90	150	NPW	41	N/A	SECT 15290	PURPLE *	1,2,4,5,8,11
FE–1	FILTERED EFFLUENT	DI	4" AND UP	15240	CEMENT MORTAR LINED	G	150	NPW	10	1	SECT 15240	BROWN *	1,2,4,5,6,7,8,9,11
FM–1	FORCE MAIN	DI	4" AND UP	15240	CERAMIC EPOXY LINED	75	150	NPW	10	1	SECT 15240	GREEN *	1,2,4,5,6,7,8,9,11
FM–2	FORCE MAIN	PVC	14" AND UP	15293	N/A	75	150	NPW	41	N/A	N/A	GREEN *	1,2,4,5,6,7,8,9,11
GS–1	GRIT SLURRY	DI	4" AND UP	15242	GLASS LINED	30	150	NPW	10	1	N/A	–	1,2,4,5,6,7,8,9
ML–1	MIXED LIQUOR	DI	4" AND UP	15240	CERAMIC EPOXY LINED	5	150	NPW	10	1	SECT 15240	DARK BROWN *	1,2,4,5,6,7,8,9,11
OA–1	ODOROUS AIR	FRP	4" AND UP	15299	N/A	SECT 15299	SECT 15299	AIR	SECT 15299	N/A	N/A	WHITE *	6,7
RAS–1	RETURN ACTIVATED SLUDGE	DI	4" AND UP	15240	CERAMIC EPOXY LINED	30	150	NPW	10	1	SECT 15240	DARK BROWN *	1,2,4,5,6,7,8,9,11
REJ–1	REJECT RETURN	DI	4" AND UP	15240	CEMENT MORTAR LINED	60	150	NPW	10	1	SECT 15240	–	1,2,4,5,6,7,8,9
RS–1	RAW SEWAGE	DI	4" AND UP	15240	CERAMIC EPOXY LINED	5	150	NPW	10	1	SECT 15240	GREEN *	1,2,4,5,6,7,8,9,11
RW–1	RECLAIMED WATER	DI	4" AND UP	15240	CEMENT MORTAR LINED	75	150	NPW	10	1	SECT 15240	PURPLE *	1,2,4,5,6,7,8,9,11
RW–2	RECLAIMED WATER	PVC	3" AND LESS	15290	N/A	75	150	NPW	41	N/A	SECT 15290	PURPLE *	1,2,4,5,6,7,8,9,11
RW–3	RECLAIMED WATER	SST	3" AND LESS	15276	N/A	75	150	NPW	N/A	N/A	N/A	–	1,2,3,6,7
SC–1	SCUM	DI	4" AND UP	15240	CERAMIC EPOXY LINED	30	150	NPW	10	1	SECT 15240	DK GRAY *	1,2,4,5,6,7,8,9,11
SD–1	STORM DRAIN	RCP/ERCP	4" AND UP	02615	N/A	G	SECT 02530	NPW	N/A	N/A	N/A	–	5,6,8,9
SE–1	SECONDARY EFFLUENT	DI	4" AND UP	15240	CEMENT MORTAR LINED	5	150	NPW	10	1	SECT 15240	BROWN *	1,2,4,5,6,7,8,9,11
SE REJ–1	SECONDARY EFFLUENT REJECT	DI	4" AND UP	15240	CEMENT MORTAR LINED	40	150	NPW	10	1	SECT 15240	–	1,2,4,5,6,7,8,9
SH–1	SODIUM HYPOCHLORITE	PVC	3" AND LESS	15290	N/A	60	150	NPW	41	N/A	SECT 15290	YELLOW *	1,2,5,8,11
SP–1	SUPPLEMENTAL CARBON	CPVC	4" AND LESS	15294	N/A	40	150	NPW	41	N/A	SECT 15290	RED *	1,2,4,5,8,11
SP–2	SUPPLEMENTAL CARBON	PVC	4" THRU 8"	15291	N/A	A	25	AIR	41	N/A	N/A	RED *	1,2,8
WAS–1	WASTE ACTIVATED SLUDGE	DI	4" AND UP	15240	CERAMIC EPOXY LINED	30	150	NPW	10	1	SECT 15240	BROWN *	1,2,4,5,6,7,8,9,11
WM–1	WATER MAIN	DI	4" AND UP	15240	CEMENT MORTAR LINED	90	150	PW	10	N/A	SECT 15240	BLUE *	1,2,3,5,6,7,8,9,11
WM–2	WATER MAIN	PVC	3" AND LESS	15290	N/A	90	150	PW	41	N/A	SECT 15290	M	1,2,3,5,6,7,8,9,11

* REF FLOW STREAM IDENTIFICATION NOTE 11

GENERAL NOTES

1. THE EXISTING TOPOGRAPHICAL FEATURES SHOWN ON THE DRAWINGS WERE OBTAINED FROM GROUND SURVEY AND REPRESENT CONDITIONS AS THEY EXIST AS OF NOVEMBER 2006, JUNE 2012 AND OCTOBER 2012. AS PART OF THE BID PROCESS, AND PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK AND MAKE ALL NECESSARY INVESTIGATIONS TO THOROUGHLY DEFINE ALL DIFFICULTIES INVOLVED IN THE COMPLETION OF ALL WORK REQUIRED PURSUANT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. ALL PIPING AND/OR APPURTENANCES CONNECTING TO ADJACENT CONSTRUCTION SHALL BE PLUGGED IF ADJACENT WORK HAS NOT BEEN COMPLETE.
3. THE DRAWINGS DEPICT THE APPROXIMATE LOCATIONS, ELEVATIONS AND DIMENSIONS AS SHOWN ON THE PLANS OF EXISTING UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INCLUDE IN THE BID TO VERIFY ALL UTILITY LOCATIONS, ELEVATIONS AND DIMENSIONS BY UTILIZING EXPLORATORY INVESTIGATION AND EXCAVATIONS. VERIFICATION OF EXISTING UTILITY LOCATION SHALL BE CONDUCTED SUFFICIENTLY IN ADVANCE OF CONSTRUCTION TO ALLOW RESOLUTION OF CONFLICTS IN A TIMELY MANNER. IF A POTENTIAL CONFLICT IS LOCATED, OR AN EXISTING UTILITY OR STRUCTURE LOCATED IN A DIFFERENT LOCATION THAN IS ILLUSTRATED HEREIN, THE CONTRACTOR IS TO NOTIFY THE RESIDENT PROJECT REPRESENTATIVE IMMEDIATELY. AT A MINIMUM, THE FOLLOWING INFORMATION SHALL BE PROVIDED BY THE CONTRACTOR TO THE RESIDENT PROJECT REPRESENTATIVE; A DIMENSIONED ILLUSTRATION NOTING LOCATION, ELEVATION, UTILITY TYPE, MATERIAL AND SIZE.
4. RESTORE ALL PROPERTY AND INFRASTRUCTURE, INCLUDING UTILITIES DISTURBED BY CONSTRUCTION OPERATIONS TO THE CONDITIONS WHICH EXISTED PRIOR TO CONSTRUCTION OR BETTER. THE COST OF SUCH RESTORATION SHALL BE INCLUDED IN THE BID. ANY DAMAGE TO EXISTING PROPERTY, UTILITIES, STRUCTURES AND/OR SERVICES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER AS DIRECTED BY THE ENGINEER AND OWNER. REMOVE AND REPLACE ALL PIPE, CONDUIT AND CULVERTS DAMAGED DURING CONSTRUCTION, AT NO EXPENSE TO THE OWNER. CONTRACTOR SHALL REMOVE AND REPLACE, OR TEMPORARILY RELOCATE, STORM SEWERS, CULVERTS AND OTHER UTILITIES AS REQUIRED DURING THE INSTALLATION OF PIPE. CONTRACTOR SHALL PROVIDE A TEMPORARY MEANS OF CONVEYING STORMWATER. WHERE TEMPORARY SUPPORT OF UTILITIES IS REQUIRED, THE CONTRACTOR SHALL PAY ALL ASSOCIATED COSTS AND COORDINATE WITH THE OWNER AND ENGINEER.
5. THE CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEMS, WHICH MIGHT BE IMPACTED BY CONSTRUCTION AS THE WORK PROCEEDS, SO AS TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY. FOLLOW THE REQUIREMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN.
6. MAINTAIN ACCESS TO AND OPERATION OF ALL EXISTING PLANT OPERATIONS UNTIL NEW OPERATIONS HAVE BEEN ACCEPTED.
7. AT A MINIMUM, ALL WORK TO BE IN ACCORDANCE WITH THE CURRENT EDITION OF ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL.
8. STORM SEWER, GRAVITY WASTEWATER, AND RECLAIMED WATER MAINS CROSSING UNDER POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWELVE (12) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE STORM/WASTEWATER/RECLAIMED WATER PIPE JOINTS AND POTABLE WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS, BOTH PIPES SHALL BE DIP, AND THE MINIMUM VERTICAL SEPARATION SHALL BE SIX (6) INCHES. WHERE THERE IS NO ALTERNATIVE TO STORM/WASTEWATER/RECLAIMED WATER PIPES CROSSING OVER A POTABLE WATER MAIN, THE CRITERIA FOR MINIMUM TWELVE (12) INCH VERTICAL SEPARATION BETWEEN LINES AND JOINT ARRANGEMENT, AS STATED ABOVE, SHALL BE REQUIRED, AND BOTH PIPES SHALL BE DIP IRRESPECTIVE OF SEPARATION. DIP IS NOT REQUIRED FOR STORM SEWERS.
9. MAINTAIN MINIMUM SIX (6) FEET HORIZONTAL SEPARATION BETWEEN POTABLE WATER MAIN AND FINISHED/SECONDARY EFFLUENT, WASTEWATER GRAVITY MAIN, FORCE MAIN OR MIXED LIQUOR. MAINTAIN MINIMUM THREE (3) FEET CLEAR (OUTSIDE BARREL TO OUTSIDE BARREL) HORIZONTAL DISTANCE BETWEEN POTABLE WATER MAIN AND STORM SEWER.
10. FORCE MAIN CROSSING POTABLE WATER MAIN OR RECLAIMED WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND OUTSIDE OF THE POTABLE WATER MAIN OR RECLAIMED WATER MAIN WITH THE POTABLE WATER OR RECLAIMED WATER MAIN CROSSING OVER THE FORCE MAIN.
11. SOD ALL DISTURBED UNPAVED AREAS, SEED AND MULCH WILL NOT BE ALLOWED.
12. INSTALL OR CONSTRUCT STORMWATER AND DEWATERING SEDIMENT CONTROL ELEMENTS SUCH AS SILT FENCES, HAY BALES, ETC. PRIOR TO COMMENCING CONSTRUCTION. MAINTAIN SEDIMENT CONTROL ELEMENTS FOR THE DURATION OF THE PROJECT, REFER TO SPECIFICATION SECTION 02270 FOR SPECIFIC EROSION AND SEDIMENTATION CONTROL.
13. PRESERVE AND PROTECT THE EXISTING CONCRETE SIDEWALKS NOT INTENDED TO BE REMOVED DURING CONSTRUCTION. REPAIR DAMAGED SIDEWALKS PER SPEC.IFICATION SECTION 02778 AND DETAIL 9/C–505. FOR CLARITY, NOT ALL SIDEWALKS ARE SHOWN.
14. CONTRACTOR IS TO NOTE ON THE AS–BUILT DRAWINGS THE LOCATION AND ELEVATION OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION.
15. A CONSTRUCTION ASSISTANCE REQUEST (C.A.R) WILL BE REQUIRED FOR ALL CONTACT WITH EXISTING OPERATION PERSONAL I.E.: TIE IN, SPARE PARTS, TRAINING ETC.. A 7–DAY NOTICE IS REQUIRED FOR ALL C.A.R.'s.
16. ALL EXISTING PIPING REQUIRING A NEW CONNECTION IS TO BE MECHANICALLY RESTRAINED PER DETAIL 4, C–502.
17. CONSTRUCTION AREA WILL BE CLEANED UP DAILY. ALL EXCAVATIONS WILL BE BACKFILLED BY END OF DAY, OR WITH PERMISSION FROM THE RESIDENT PROJECT REPRESENTATIVE, MAY LEFT OPEN WITH PROPER SAFETY PRECAUTIONS. CONTRACTOR SHALL HANDLE ALL SPILLS, DRAINING PIPES OR TIE–IN CONNECTIONS. CONTRACTOR WILL HAVE TANKER TRUCKS AND LINE EXCAVATIONS WITH POLY LINER IN ORDER TO HANDLE SPILLS AND TO CAPTURE AND DISPOSE OF FLUIDS ENCOUNTERED.
18. POLYETHYLENE SHEET ENCASE ALL DUCTILE IRON PIPE EXCEPT FOR AIR–1, REFER TO SPECIFICATION SECTION 09954.
19. ALL ELECTRICAL BOXES, PANELS ETC... IN NON CLIMATE CONTROLLED AREAS SHALL BE 316 SST, NEMA 4X.
20. ALL DUCTILE IRON PIPING AND APPURTENANCES FOR AIR–1 SERVICE SHALL UTILIZE VITON GASKETS, REFERENCE SPECIFICATION 15240.
21. CONTRACTOR SHALL TAKE CARE TO PROVIDE PROPER GRADE, ELEVATIONS AND ALIGNMENT TO PROVIDE FOR FUTURE CONNECTIONS.
22. WHEN TRENCH EXCAVATION EXCEEDS FIVE (5) FEET IN DEPTH, PERFORM THE FOLLOWING:
    - 22.A. CONTRACTOR SHALL CONFORM TO OSHA STD. 29CFR. SECTION 1926.650 WHICH IS INCORPORATED IN FLORIDA STATE 90–96.
    - 22.B. CONTRACTOR SHALL PROVIDE WRITTEN ASSURANCE OF COMPLIANCE WITH THIS LAW.
    - 22.C. THE TRENCH SAFETY SYSTEM IS TO BE SUBMITTED BY THE CONTRACTOR.
23. ALL PIPING SHALL BE PRESSURE AND LEAK TESTED IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY PLUGS, BLOCKING, TAPS AND TESTING EQUIPMENT REQUIRED TO COMPLETE THE TESTING AS SPECIFIED.
24. ALL PIPING UNDER STRUCTURES TO BE CONCRETE ENCASED PER DETAIL 2/C–510.
25. ALL EXISTING PIPE TO BE ABANDONED TO BE GROUT FILLED.
26. THE CONTRACTOR IS ADVISED THAT HAND DIGGING MAY BE THE ONLY METHOD AVAILABLE TO AVOID PIPELINE & ELECTRICAL DUCTBANK DESTRUCTION IN MANY CONGESTED AREAS.
27. NOT ALL PIPE SUPPORTS ARE SHOWN. PIPE SUPPORTS FOR PIPING 3" AND LESS NOT SHOWN. PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH SECTION 15064.
28. STORM DRAIN IMPROVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS.
29. THE CONTRACTOR SHALL PUMP STORMWATER, OR GROUND WATER INTRUSION INTO THE STORMWATER COLLECTION SYSTEM IF REQUIRED, REF NOTE 5.

SURVEYORS NOTES

HORIZONTAL ROTATION AND COORDINATES ARE BASED ON THE ORANGE COUNTY GIS SYSTEM, (FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 1983/90 ADJUSTMENT). THESE COORDINATES WERE DERIVED FROM A FIELD TRAVERSE THROUGH PUBLISHED POSITIONS.

ELEVATIONS SHOWN HEREON ARE BASED ON ORANGE COUNTY DATUM (NGVD 29) AS DERIVED FROM BENCHMARK C–1022–005, AN ORANGE COUNTY DISC IN CURB INLET AT THE NE CORNER OF ALAFAYA TRAIL AND GOLFWAY BLVD, ELEVATION 83.574 AND BENCHMARK L–668–011, AN ORANGE COUNTY DISC IN HEADWALL ON THE NORTH SIDE OF ALAFAYA TRAIL, WEST OF PLANT SITE, ELEVATION 80.857.

FLOW STREAM IDENTIFICATION NOTES

1. TEST PIPING IN ACCORDANCE W/ SPEC SECTION 15144 UNLESS OTHERWISE NOTED (UON).
2. LABEL PIPING IN ACCORDANCE W/ SPEC SECTION 15075.
3. DISINFECT PIPING IN ACCORDANCE W/ SPEC SECTION 15141.
4. WHEN CONNECTING FLANGES OR THREADS OF DISSIMILAR METALS, USE FLANGE OR UNION INSULATION KITS AS SPECIFIED IN SECTION 15122 AND DETAIL 2/D–503.
5. MINIMUM COVER FOR PIPING SHALL BE 3 FEET, UON, REFERENCE GENERAL NOTE 8.
6. ALL PIPING IS TO HAVE A CONSTANT SLOPE BETWEEN THE INVERT OR CENTERLINE POINT SHOWN ON THE DRAWINGS, UON.
7. ALL PIPING JOINTS ARE TO BE MECHANICALLY RESTRAINED.
8. COORDINATE CONNECTION AND ELEVATIONS AT STRUCTURES W/ PROCESS, MECHANICAL AND PLUMBING DRAWINGS.
9. PROVIDE MINIMUM SEPARATION OF PIPING AS IDENTIFIED IN THE GENERAL NOTES.
10. DO NOT COAT STAINLESS STEEL PIPE AND FITTINGS.
11. COLOR OF COATING TO BE IN ACCORDANCE W/CURRENT ORANGE COUNTY STANDARD COLORS FOR PROCESS DESIGNATION.
12. WORKING PRESSURE "G" INDICATES GRAVITY
13. WORKING PRESSURE "A" INDICATES ATMOSPHERIC

REVISIONS

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AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB–8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

GENERAL NOTES, LOCATION MAP AND FLOW STREAM IDENTIFICATION

GENERAL

PROJECT NO:	60222491
CAD DWG FILE:	G–004
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

G-004

4 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5–FINAL–DESIGN\000 CAD\SHEETS\G\G–004.DWG
LAST UPDATE: Wednesday, August 20, 2014 9:24:14 AM
PLOT DATE: Wednesday, August 20, 2014 9:32:40 AM
PLOTTED: Robertsonq
ANSI D – 20–Aug–14

SEE SHEET C-106

SEE SHEET C-108

DEMOLISH EXISTING CURB AND GUTTER. CLEAR AND GRUB TREES AND VEGETATION.

RAPID INFILTRATION BASIN 4

RAPID INFILTRATION BASIN 5

SEE SHEET C-112

20 0 20

SCALE: 1" = 20'

NOTES:

1. REFERENCE SHEET G-005 FOR LEGEND ILLUSTRATING DEMOLITION & ABANDONMENT.
2. ALL EXISTING PIPE TO BE ABANDONED TO BE GROUT FILLED.
3. REFERENCE SPECIFICATIONS AND UTILITY NOTES ON C-143 FOR SEQUENCE OF CONSTRUCTION.

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EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

DEMOLITION PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-106
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-109

21 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-106.DWG
LAST UPDATE: Wednesday, August 20, 2014 6:17:00 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 6:32:50 AM

SEE SHEET C-110

SEE SHEET C-111

CHLORINE CONTACT TANKS
PROCESS 380

ABW FILTERS
PROCESS 370

CLARIFIER NO. 6
PROCESS 346

PH III BLOWER BLDG
PROCESS 180

SCALE: 1" = 20'

SALVAGE DEMOLITION BY OTHERS

EFFLUENT PUMP STATION
PROCESS 390

FILTER SPLITTER BOX
PROCESS 360

DEMOLISH SIDEWALK, TYP

CONTRACTOR TO PROVIDE TEMPORARY DRAINAGE/STORM WATER CONVEYANCE FACILITES PRIOR TO DEMOLITION OF STORM DRAIN, REF G-004, GENERAL NOTES, TYP.

REFERENCE ELECTRICAL FOR ELECTRICAL DEMOLITION, TYP

RAS/WAS/PUMP STATION
PROCESS 352

DEMOLISH FENCING TO LIMITS SHOWN, TYP

CLEAR, GRUB & STRIP TREES, TYP

CLARIFIER NO. 9
PROCESS 349

DEMOLISH CONCRETE PAD TO LIMITS SHOWN

CLEAR, GRUB & STRIP ALL TREES WITHIN AREA OF VEGETATION TO BE CLEARED (TYP.) HATCH NOT SHOWN FOR CLARITY.

APPROXIMATE LIMITS OF VEGETATION TO REMAIN

NOTES:

1. REFERENCE SHEET G-005 FOR LEGEND ILLUSTRATING DEMOLITION & ABANDONMENT.
2. ALL EXISTING PIPE TO BE ABANDONED TO BE GROUT FILLED.
3. REFERENCE SPECIFICATIONS AND UTILITY NOTES ON C-143 FOR SEQUENCE OF CONSTRUCTION.

LIMITS OF EXISTING VEGETATION, TYP.

IN-PLANT LIFT STATION
PROCESS 495

CLARIFIER NO. 10
PROCESS 440

DEMOLISH FENCING TO LIMITS SHOWN

SEE SHEET C-115

SEE SHEET C-114

REVISIONS

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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

DEMOLITION PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-106
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-113
25 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-106.DWG
LAST UPDATE: Wednesday, August 20, 2014 6:11:00 AM
PLOT DATE: Wednesday, August 20, 2014 9:32:53 AM
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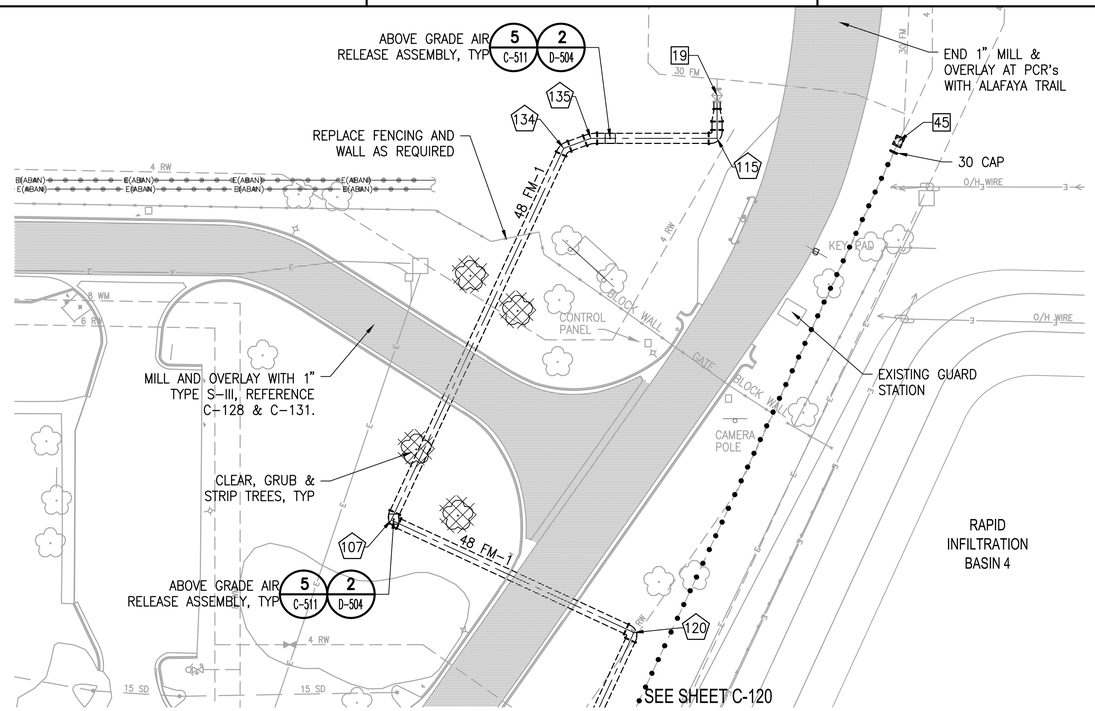
ANSI D - 20-Aug-14



1 ENLARGED PLAN
SCALE: 1"=30'-0"

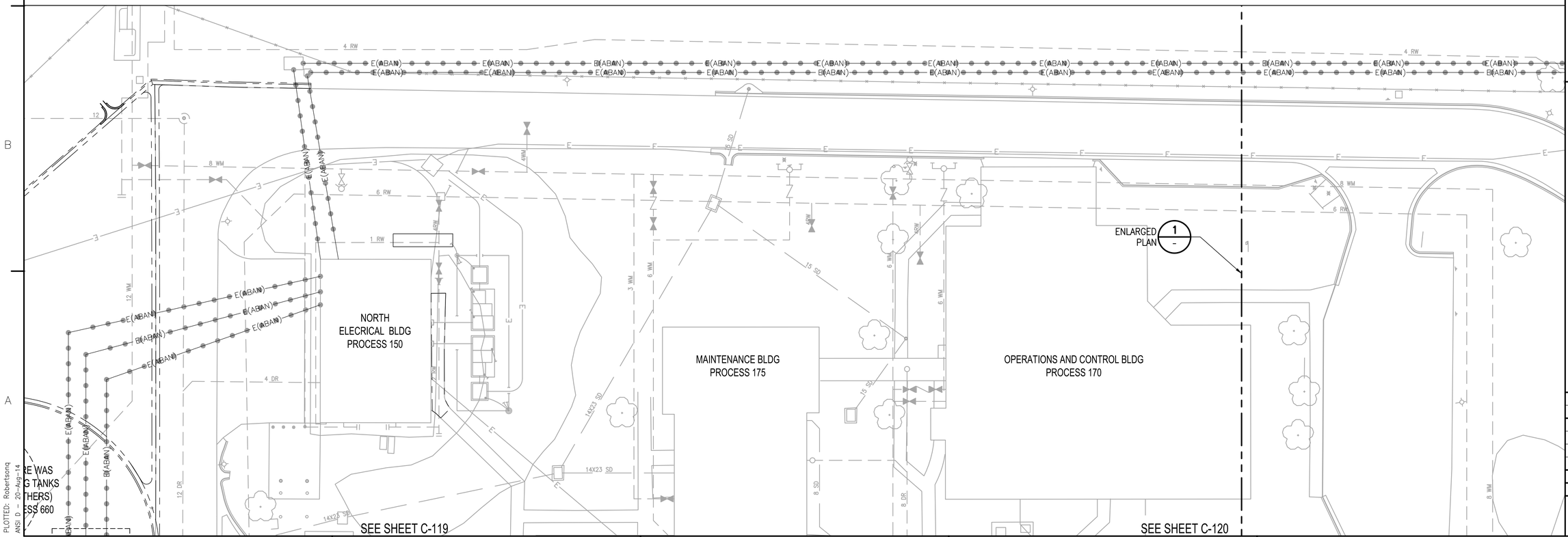
30 0 30
SCALE: 1" = 30'

NOTES:

XX XX XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSING TABLE AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
4. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
5. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

20 0 20
SCALE: 1" = 20'



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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

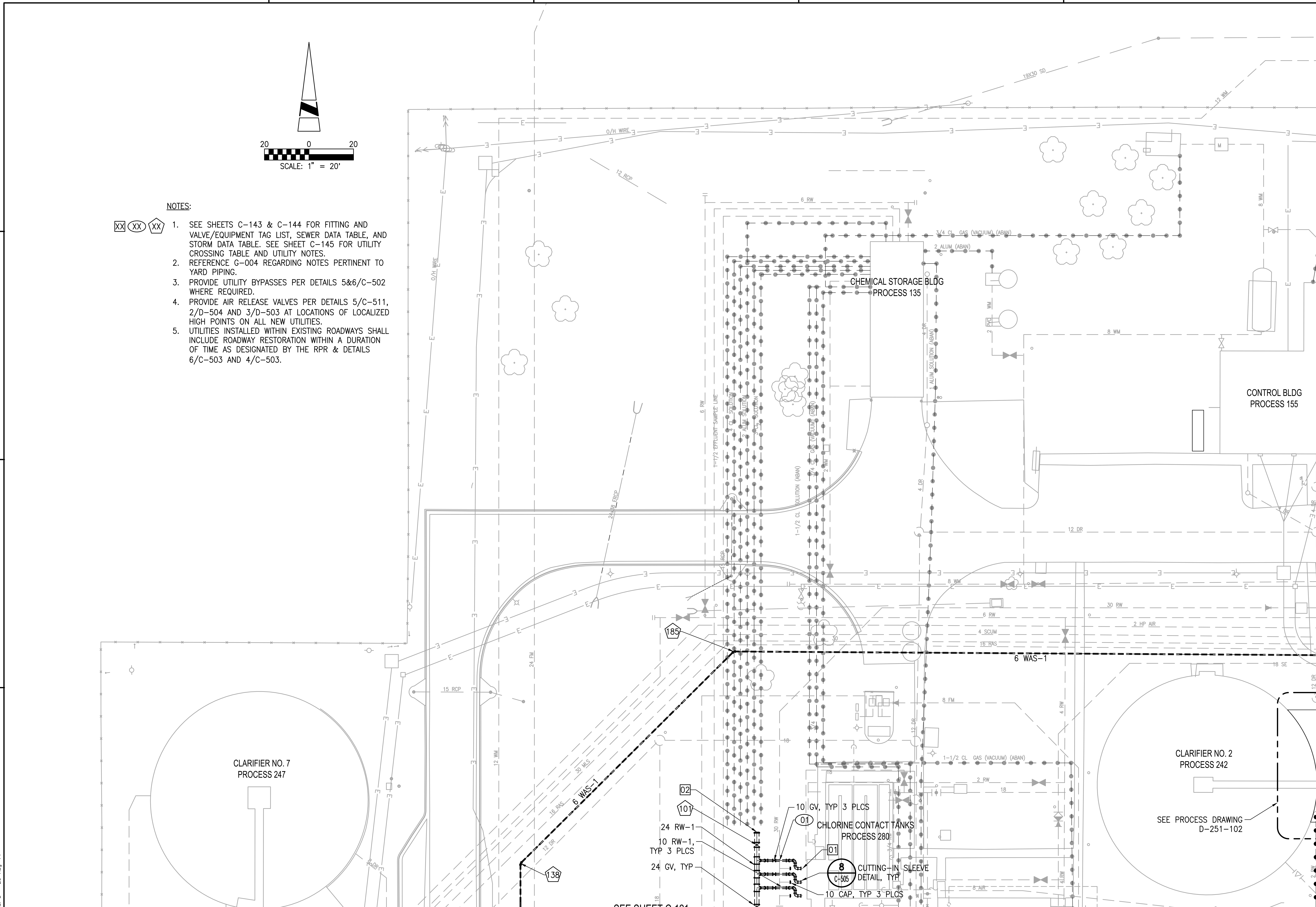
YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-117
29 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 6:20:46 AM
PLOT DATE: Wednesday, August 20, 2014 6:33:25 AM
PLOTTED: Robertsonq
ANSI D – 20-Aug-14



NOTES:

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YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-118

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOT DATE: Wednesday, August 20, 2014 9:33:37 AM
PLOTTED: Robertsong
ANSI D - 20-Aug-14

SEE SHEET C-117 (LOWER)

CENTRIFUGE DEWATERING FACILITY (BID PACKAGE B) PROCESS 650

FUTURE WAS SCREENING (BID PACKAGE B) PROCESS 670

FUTURE WAS HOLDING TANKS (BID PACKAGE B) PROCESS 660

FUEL DEPOT

BELT FILTER DEWATERING BLDG PROCESS 640

BIOSOLIDS HANDLING BLDG PROCESS 630

WAS HOLDING TANKS PROCESS 620

PH I/II WAS BOOSTER PS (BID PACKAGE B) PROCESS 610

CLARIFIER NO. 1 PROCESS 241

PH I/II 2nd ANOXIC PROCESS 230

PH I/II AERATION BASINS 1-4 PROCESS 220

PH I/II 1st ANOXIC BASINS PROCESS 215

PH I/II FERMENTATION PROCESS 210

SEE SHEET C-118

SEE SHEET C-120

SEE SHEET C-122

SEE PROCESS DRAWING D-251-102

SEE PROCESS DRAWING D-240-100 FOR P.O.C. ON 4 SC-1 AND 6 WAS-1

8 SLEEVE

6 SLEEVE

16 SLEEVE

8 PV

6 PV

4 PV

16 PV

16 RAS-1

12 WAS-1

6 WAS-1

6 SC-1

30 ML-1

6x4 TEE

12x6 TEE

8 CUTTING-IN SLEEVE DETAIL C-505

TAPPING SLEEVE 7 C-503

20 0 20

SCALE: 1" = 20'

NOTES:

XX XX XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSING TABLE AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
4. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
5. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

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PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

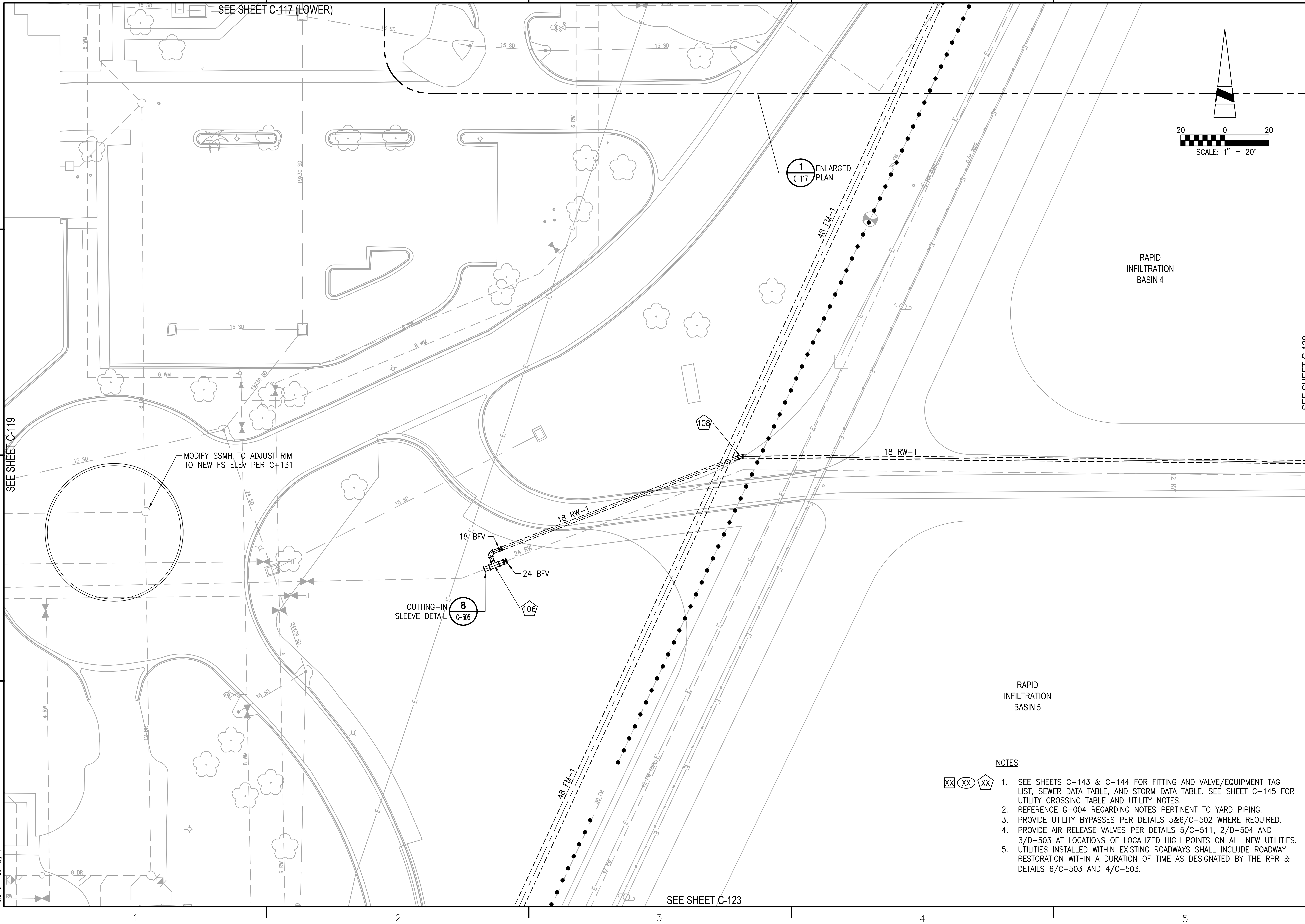
CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-119

31 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:33:42 AM



NOTES:

XX XX XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSING TABLE AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
4. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
5. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

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150 NORTH ORANGE AVENUE, SUITE 200
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PHONE 407.843.6552
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

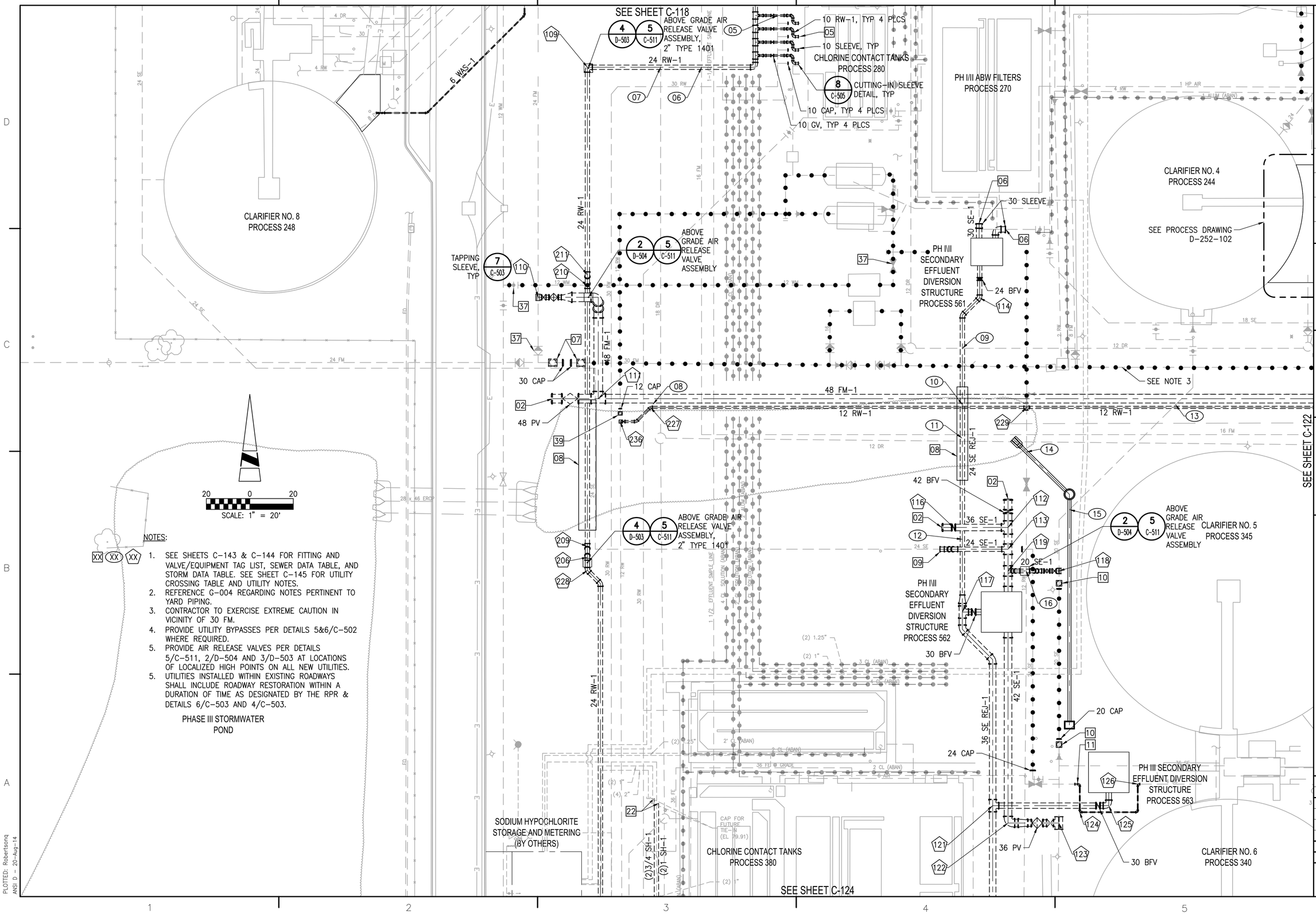
YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-120

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOT DATE: Wednesday, August 20, 2014 9:33:46 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14



NOTES:

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSING TABLE AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. CONTRACTOR TO EXERCISE EXTREME CAUTION IN VICINITY OF 30 FM.
4. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
5. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
5. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

PHASE III STORMWATER POND

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

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150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

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EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
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DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-121

33 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:33:51 AM

SEE SHEET C-119

SEE SHEET C-121

SEE SHEET C-123

SEE SHEET C-124

SEE SHEET C-125

CLARIFIER NO. 3
PROCESS 243

SEE PROCESS DRAWING
D-252-102

PH I/II 2nd ANOXIC
PROCESS 230

PH I/II AERATION BASINS 1-4
PROCESS 220

PH I/II 1st ANOXIC BASINS
PROCESS 215

PH I/II FERMENTATION
PROCESS 210

SCALE: 1" = 20'

SUPPLEMENTAL
CARBON BLDG
PROCESS 520

PH I/II BLOWER
ENCLOSURE
PROCESS 220

PH III
INFLUENT
METER
PROCESS 500

PRETREATMENT BLDG
PROCESS 500

PH III PRETREATMENT
PROCESS 300

ODOR CONTROL

PH III AERATION BASINS
PROCESS 320

PH III 1ST ANOXIC BASINS
PROCESS 315

PH III FERMENTATION
PROCESS 310

PH III 2nd ANOXIC
BASINS
PROCESS 330

ABOVE GRADE AIR RELEASE
VALVE ASSEMBLY 5/C-511 2/D-504

FIRE HYDRANT
ASSEMBLY DETAIL 1/C-502

CONDENSATE
BLOWOFF DETAIL 3/D-501

TAPPING
SLEEVE, TYP 7/C-503

NOTES:

XX/XX/XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSING TABLE AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. CONTRACTOR TO EXERCISE EXTREME CAUTION IN VICINITY OF 30 FM.
4. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
5. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
6. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-122
34 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:26:46 AM
PLOT DATE: Wednesday, August 20, 2014 9:33:56 AM
PLOTTED: Robertsonq
ANSI D — 20-Aug-14

SEE SHEET C-120

PH I/II PRETREATMENT (ABANDONED)

36 SD-1

30 CAP, ℄ EL=75.9±

EXISTING VACTOR DUMPING STATION

42 FM-1

48 FM-1

SUPPLEMENTAL CARBON BLDG PROCESS 520

METERING STATION PROCESS 500

6 FM-1

1 WM-1

8 GV

6 SC-1

42 RS-1

8 SLEEVE

8 RW-1

6 FM-1

48 RS-1

20 FM-1

SEE SHEET C-122

PRETREATMENT BLDG PROCESS 500

6 PV

CLEANOUT DETAIL 7 C-504

1" BACKFLOW PREVENTER PER ORANGE COUNTY STANDARD

12 RAS-1

8 WM-1

36 REL-1

SEE NOTES 3&5

SEE NOTE 4&5

(2) 6" SCH 40 PVC SLEEVES

SEE SHEET C-125

2 D-504 / 5 C-511 ABOVE GRADE AIR RELEASE VALVE ASSEMBLY

1" BACKFLOW PREVENTER PER ORANGE COUNTY STANDARD

RAPID INFILTRATION BASIN 5

24 RW

20 0 20
SCALE: 1" = 20'

NOTES:

XX XX XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSINGS TABLE, AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. 3 INCH BACKWATER CHECK VALVE INSTALLED IN 30"x30" CONCRETE VAULT.
4. 4 INCH BACKWATER CHECK VALVE INSTALLED AT MANHOLE.
5. BACKWATER CHECK VALVE: DURACOATED CAST IRON BODY WITH NO HUB INLET AND OUTLET, GASKETED BOLTED COVER, BRONZE FLAPPER TYPE VALVE WITH "O" RING. ZURN MODEL 21090 OR EQUAL.
6. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
7. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
8. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

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EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-123
35 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:34:01 AM

SEE SHEET C-121

SEE SHEET C-122

SEE SHEET C-125

SEE SHEET C-126

SODIUM HYPOCHLORITE STORAGE AND METERING (BY OTHERS)

CHLORINE CONTACT TANKS PROCESS 380

ABW FILTERS PROCESS 370

PH III 2nd ANOXIC BASINS PROCESS 330

PH III BLOWER BLDG PROCESS 180

CLARIFIER NO. 6 PROCESS 346

SCALE: 1" = 20'

ELECTRIC ACTUATED BFV W/ NECK EXTENSION (4 / C-507)

48x30 ECC RDCR

EFFLUENT PUMP STATION PROCESS 390

FILTER SPLITTER BOX PROCESS 360

SECONDARY EFFLUENT REJECT METERING STATION PROCESS 560

RAS/WAS/PUMP STATION PROCESS 352

CHLORINE CONTACT PROCESS 580

FUTURE DISK FILTERS

FUTURE EFFLUENT PUMP STATION

FUTURE CHLORINE CONTACT CHAMBER

SECONDARY EFFLUENT REJECT PUMP STATION PROCESS 560

CLARIFIER NO. 9 PROCESS 349

PH III/IV SECONDARY EFFLUENT DIVERSION STRUCTURE PROCESS 564

IN-PLANT LIFT STATION PROCESS 495

CLARIFIER NO. 10 PROCESS 440

WEST ELEC BLDG PROCESS 575

FUTURE MEMBRANE PROCESS CUTTING-IN SLEEVE DETAIL, TYP (8 / C-505)

(5 / C-507) BACKFLOW PREVENTER MODIFICATIONS

12" BACKFLOW PREVENTER PER ORANGE COUNTY STANDARDS

(1 / C-502) FIRE HYDRANT ASSEMBLY DETAIL

12 GV, REFERENCE PROCESS DRAWING D-580-101 FOR CONTINUATION

NOTES:

XX XX XX

1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSINGS TABLE, AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-124

36 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 6:20:46 AM
PLOT DATE: Wednesday, August 20, 2014 9:34:06 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14

SEE SHEET C-122

SEE SHEET C-123

SEE SHEET C-124

SEE SHEET C-139

SEE SHEET C-127

PH III AERATION BASINS
PROCESS 320

SOUTH ELECTRICAL BLDG
PROCESS 160

MAIN ELECTRICAL
BLOWER BLDG
PROCESS 185

FUEL DEPOT

RAPID
INFILTRATION
BASIN 5

BNR BASIN NO. 7
PROCESS 420

JET OR DIRECTIONAL DRILL
1 SP-1 UNDER ROADWAY

12 RW-1
8 RW-1
36 REJ-1
42 SE REJ-1
42 SLEEVE
42 CAP
42 RS-1
42 RS (FUT)
1 SP-1
12 GV
8 GV

20 0 20
SCALE: 1" = 20'

NOTES:

XX (XX) XX 1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSINGS TABLE, AND UTILITY NOTES.
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WILLIAM D. MARSHALL, PE
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ORANGE COUNTY UTILITIES DEPARTMENT
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PHASE V IMPROVEMENTS

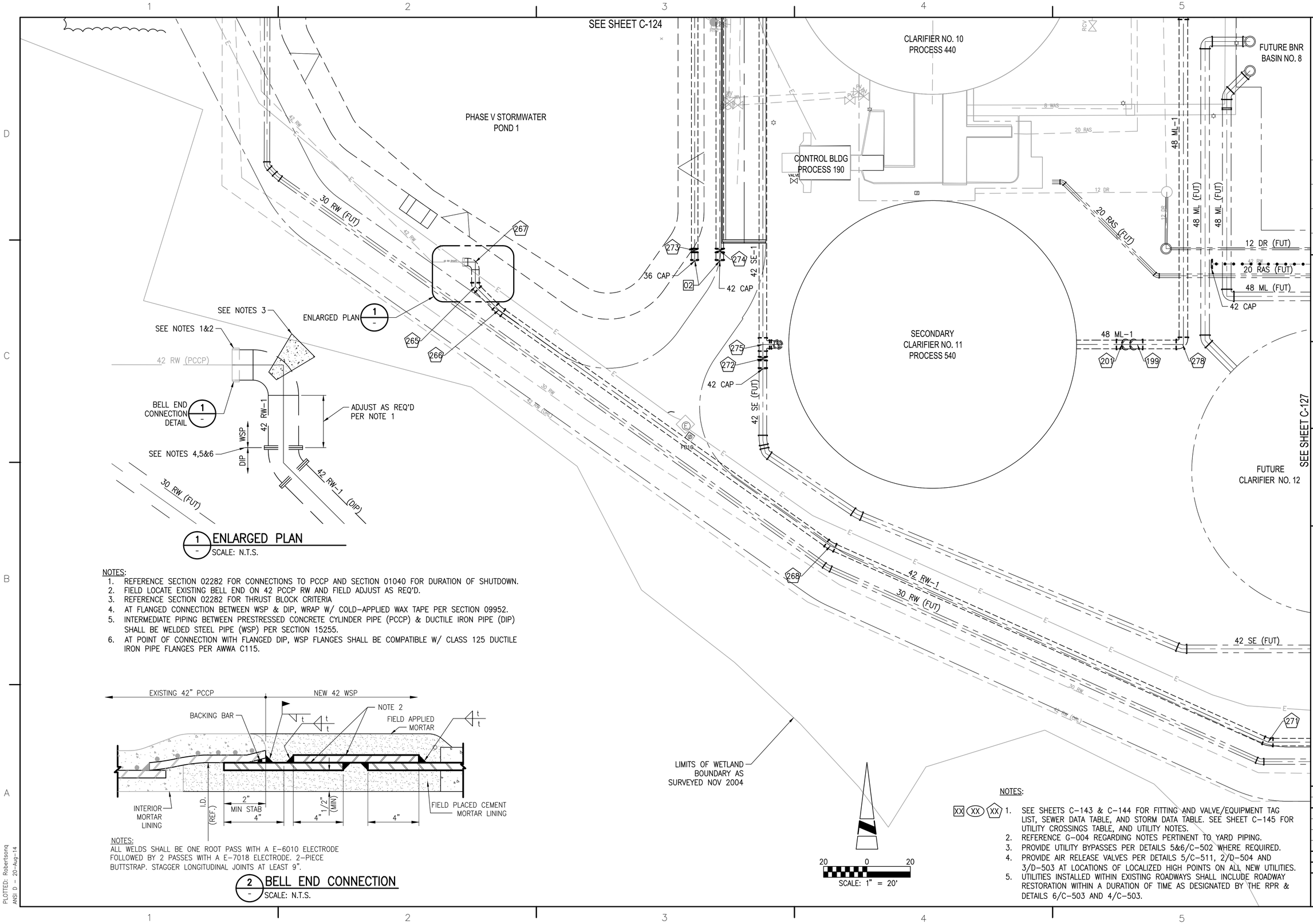
YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-125
37 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOTTED: Robertsonq
ANSI D – 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:34:11 AM



1 ENLARGED PLAN
- SCALE: N.T.S.

NOTES:
1. REFERENCE SECTION 02282 FOR CONNECTIONS TO PCCP AND SECTION 01040 FOR DURATION OF SHUTDOWN.
2. FIELD LOCATE EXISTING BELL END ON 42 PCCP RW AND FIELD ADJUST AS REQ'D.
3. REFERENCE SECTION 02282 FOR THRUST BLOCK CRITERIA
4. AT FLANGED CONNECTION BETWEEN WSP & DIP, WRAP W/ COLD-APPLIED WAX TAPE PER SECTION 09952.
5. INTERMEDIATE PIPING BETWEEN PRESTRESSED CONCRETE CYLINDER PIPE (PCCP) & DUCTILE IRON PIPE (DIP) SHALL BE WELDED STEEL PIPE (WSP) PER SECTION 15255.
6. AT POINT OF CONNECTION WITH FLANGED DIP, WSP FLANGES SHALL BE COMPATIBLE W/ CLASS 125 DUCTILE IRON PIPE FLANGES PER AWWA C115.

NOTES:
ALL WELDS SHALL BE ONE ROOT PASS WITH A E-6010 ELECTRODE FOLLOWED BY 2 PASSES WITH A E-7018 ELECTRODE. 2-PIECE BUTTSTRAP. STAGGER LONGITUDINAL JOINTS AT LEAST 9".

2 BELL END CONNECTION
- SCALE: N.T.S.

20 0 20
SCALE: 1" = 20'

NOTES:
XX XX XX
1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSINGS TABLE, AND UTILITY NOTES.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
4. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
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WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-126
38 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\CVC-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOT DATE: Wednesday, August 20, 2014 8:34:19 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14

SEE SHEET C-125

SEE SHEET C-126

FUTURE BNR BASIN NO. 8

FUTURE CLARIFIER NO. 12

FUTURE CLARIFIER NO. 13

FUTURE ELECTRICAL BLDG

RAPID INFILTRATION BASIN 6

18 RAS (FUT)

12 DR (FUT)

20 RAS (FUT)

48 ML (FUT)

42 RS (FUT)

42 SE (FUT)

42 RW-1

30 RW (FUT)

42 CAP

279

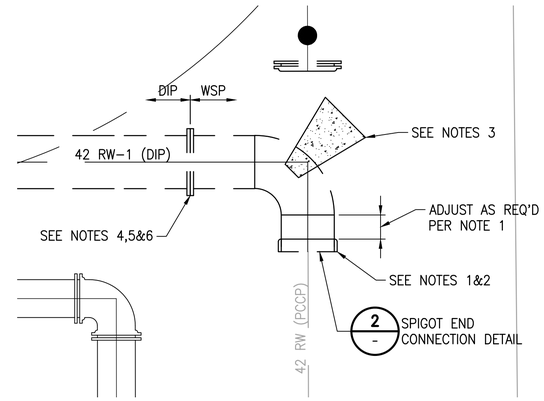
42 RW (ORL)

12 RW

8 LEA FM

20 0 20

SCALE: 1" = 20'

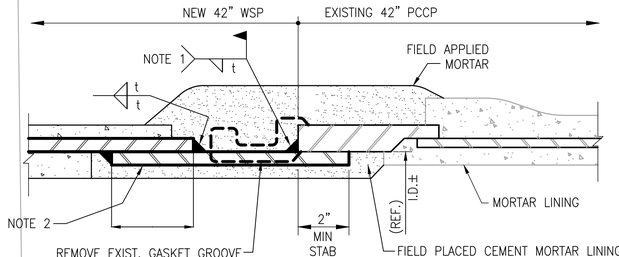


1 ENLARGED PLAN

SCALE: N.T.S.

NOTES:

1. REFERENCE SECTION 02282 FOR CONNECTIONS TO PCCP AND SECTION 01040 FOR DURATION OF SHUTDOWN.
2. FIELD LOCATE EXISTING SPIGOT END ON 42 PCCP RW AND FIELD ADJUST AS REQ'D.
3. REFERENCE SECTION 02282 FOR THRUST BLOCK CRITERIA
4. AT FLANGED CONNECTION BETWEEN WSP & DIP, WRAP W/ COLD-APPLIED WAX TAPE PER SECTION 09952.
5. INTERMEDIATE PIPING BETWEEN PRESTRESSED CONCRETE CYLINDER PIPE (PCCP) & DUCTILE IRON PIPE (DIP) SHALL BE WELDED STEEL PIPE (WSP) PER SECTION 15255.
6. AT POINT OF CONNECTION WITH FLANGED DIP, WSP FLANGES SHALL BE COMPATIBLE W/ CLASS 125 DUCTILE IRON PIPE FLANGES PER AWWA C115.



NOTES:

1. ALL WELDS SHALL BE ONE ROOT PASS WITH A E-6010 ELECTRODE FOLLOWED BY 2 PASSES WITH A E-7018 ELECTRODE.
2. 2-PIECE BUTTSTRAP.

2 SPIGOT END CONNECTION

SCALE: N.T.S.

1 ENLARGED PLAN

NOTES:

XX (XX) XX 1. SEE SHEETS C-143 & C-144 FOR FITTING AND VALVE/EQUIPMENT TAG LIST, SEWER DATA TABLE, AND STORM DATA TABLE. SEE SHEET C-145 FOR UTILITY CROSSINGS TABLE, AND UTILITY NOTES.

2. REFERENCE G-004 REGARDING NOTES PERTINENT TO YARD PIPING.
3. PROVIDE UTILITY BYPASSES PER DETAILS 5&6/C-502 WHERE REQUIRED.
4. PROVIDE AIR RELEASE VALVES PER DETAILS 5/C-511, 2/D-504 AND 3/D-503 AT LOCATIONS OF LOCALIZED HIGH POINTS ON ALL NEW UTILITIES.
5. UTILITIES INSTALLED WITHIN EXISTING ROADWAYS SHALL INCLUDE ROADWAY RESTORATION WITHIN A DURATION OF TIME AS DESIGNATED BY THE RPR & DETAILS 6/C-503 AND 4/C-503.

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ORLANDO, FLORIDA 32801
PHONE 407.843.6552
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WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

YARD PIPING PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-117
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-127

39 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C-117.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:20:46 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:34:31 AM

SEE SHEET C-128

REF C-117 FOR EXTENT OF MILL AND OVERLAY

20 0 20
SCALE: 1" = 20'

PROTECTION AROUND INLETS OR SIMILAR STRUCTURES, TYP (3 / C-505)

RAPID INFILTRATION BASIN 4

2 / C-503 ROAD CONNECTION

SEE SHEET C-130

A / C-134

2.0%

MILL AND OVERLAY WITH 1" TYPE S-III TO LIMITS SHOWN, TYP ZONE A-1

FS AS REQ'D TO PROVIDE MIN 2% GRADE ALL DIRECTIONS

RAPID INFILTRATION BASIN 5

SEE SHEET C-134

NOTES:

1. SEE SHEET C-144 FOR STORM PIPING DATA TABLE.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO STORMWATER BMP INSTALLATION, TEMPORARY DRAINAGE RECONFIGURATION, ETC...
3. SILT FENCE SHOWN IN DRAWINGS FOR GENERAL ILLUSTRATIVE PURPOSES. SILT FENCE TO BE INSTALLED IN LOCATIONS PER NPDES AND FDEP ERP PERMIT REQUIREMENTS. SILT FENCE TO BE INSTALLED PER DETAIL 1/C-505.
4. PROTECTION AROUND STORMDRAIN INLETS & SIMILAR STRUCTURES SHOWN IN DRAWINGS FOR GENERAL ILLUSTRATIVE PURPOSES. PROTECTION AROUND INLETS TO BE INSTALLED IN LOCATIONS PER NDPES AND FDEP ERP PERMIT REQUIREMENTS. PROTECTION AROUND INLETS PER DETAIL 3/C-505.
5. REFERENCE STRUCTURAL DRAWINGS FOR CONCRETE SLABS NOT NOTED HEREIN.
6. STORM DRAIN IMPROVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

AECOM TECHNICAL SERVICES, INC
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL PE
FLORIDA PROFESSIONAL LICENSE NO. 66262

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

PAVING GRADING AND DRAINAGE PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-128
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-131
43 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C-128.DWG
LAST UPDATE: Tuesday, August 19, 2014 12:52:25 PM
PLOTTED: Robertsonq
ANSI D - 19-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:34:50 AM

SEE SHEET C-132

SEE SHEET C-133

SODIUM HYPOCHLORITE STORAGE AND METERING (BY OTHERS)

CHLORINE CONTACT TANKS PROCESS 380

ABW FILTERS PROCESS 370

CLARIFIER NO. 6 PROCESS 346

PH III 2nd ANOXIC BASINS PROCESS 330

PH III BLOWER BLDG PROCESS 180

SILT FENCE, TYP (1/C-505)

SWALE UNDER SIDEWALK, TYP (7/C-505)

EFFLUENT PUMP STATION PROCESS 390

FILTER SPLITTER BOX PROCESS 360

GRAVEL BED/MOW STRIP, TYP (7/C-502)

SECONDARY EFFLUENT REJECT METERING STATION PROCESS 560 FS = 82.00

SCALE: 1" = 20'

FL=81.3

FS=83.00

FS=82.00

FL=82.00

FG=82.60

MATCH EXISTING PAVEMENT

FL=82.6

SIDEWALK, TYP (3/C-503)

FL=81.70

CONNECT TO EXISTING FENCE, REPLACE EXISTING POST AND INSTALL PER DETAIL 1/C-506

FENCE (1/C-506)

FS 79.50

TIE INTO EXISTING ROADWAY (2/C-502)

CHLORINE CONTACT PROCESS 580

FUTURE DISK FILTERS

SECONDARY EFFLUENT REJECT PUMP STATION PROCESS 560 FS = 82.00

SWALE SECTION IN CUT, TYP (5/C-505)

RAS/WAS/PUMP STATION PROCESS 352

FG=81.3

FUTURE EFFLUENT PUMP STATION

CLARIFIER NO. 9 PROCESS 349

10' SERVICE ROAD, ROADWAY TO SLOPE WEST (3/C-507)

FL=81.60

FS 81.25

RIBBON GUTTER, TYP (8/C-503)

FL=81.8

FUTURE CHLORINE CONTACT CHAMBER

FLUME, TYP FDOT STANDARD INDEX NO. 283

FL=81.4

℄=84.1 END CROWNED ROADWAY

24" SD-1

FL=81.2

FG=81.3

FG=81.3

FL=81.1

FS=84.1

PH III/IV SECONDARY EFFLUENT DIVERSION STRUCTURE PROCESS 564

SWALE SECTION IN CUT, TYP (5/C-505)

FL 81.73

TYPE "F" CURB & GUTTER, TYP (4/C-503)

FUTURE MEMBRANE PROCESS

ROADWAY CROWNED (A/C-134)

FG=83.0

FG=84.3

TC=84.0

TC=84.50

3.1%

FS/GB 83.90

1.0%

FS/HP/GB 85.00

0.5%

TC= 84.75

24" SD-1

FS 84.42

1.6%

FS (MATCH EXIST PVMT) 82.00±

29"x45" SD-1

MILL AND OVERLAY WITH 1" TYPE S-III TO LIMITS SHOWN, TYP

FS/GB 84.00

IN-PLANT LIFT STATION PROCESS 495

FS 84.25

ROADWAY SUPERELEVATED SIM. (A/C-134)

CLARIFIER NO. 10 PROCESS 440

FS 83.40

85.0 FG

WEST ELEC BLDG PROCESS 575 FF=85.75

GRAVEL BED/MOW STRIP, TYP (7/C-502)

BOLLARD, TYP (3/C-501)

ENERGY DISSIPATER, TYP (10/C-505)

STORM DRAIN POND FG=81.0

FL 81.0

TIE INTO EXIST ROADWAY (2/C-502)

THICKENED SLAB ON GRADE, TYP (1/C-507)

SEE NOTE 7/C-137

SEE SHEET C-137

SEE SHEET C-136

NOTES:

1. SEE SHEET C-144 FOR STORM PIPING DATA TABLE.
2. REFERENCE G-004 REGARDING NOTES PERTINENT TO STORMWATER BMP INSTALLATION, TEMPORARY DRAINAGE RECONFIGURATION, ETC...
3. SILT FENCE SHOWN IN DRAWINGS FOR GENERAL ILLUSTRATIVE PURPOSES. SILT FENCE TO BE INSTALLED IN LOCATIONS PER NPDES AND FDEP ERP PERMIT REQUIREMENTS. SILT FENCE TO BE INSTALLED PER DETAIL 1/C-505.
4. PROTECTION AROUND STORMDRAIN INLETS & SIMILAR STRUCTURES SHOWN IN DRAWINGS FOR GENERAL ILLUSTRATIVE PURPOSES. PROTECTION AROUND INLETS TO BE INSTALLED IN LOCATIONS PER NDPES AND FDEP ERP PERMIT REQUIREMENTS. PROTECTION AROUND INLETS PER DETAIL 3/C-505.
5. REFERENCE STRUCTURAL DRAWINGS FOR CONCRETE SLABS NOT NOTED HEREIN.
6. STORM DRAIN IMPROVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS.

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552
CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

PAVING GRADING AND DRAINAGE PLAN

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-128
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-135
47 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-128.DWG
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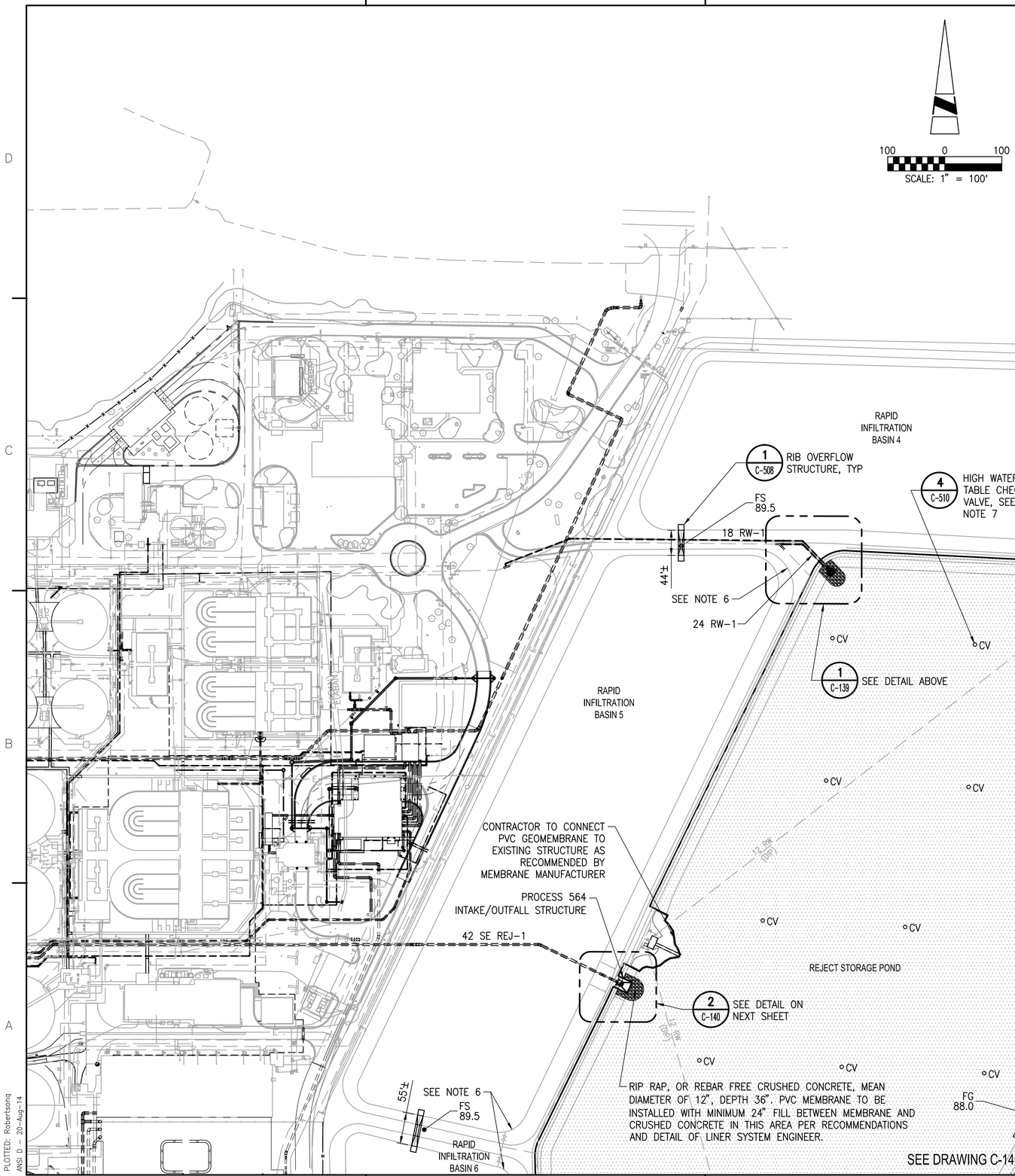
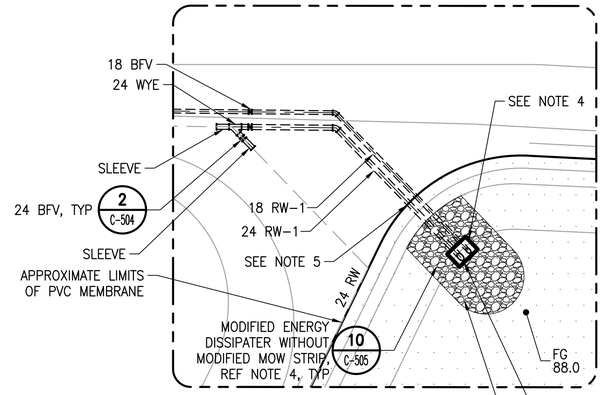
PLOTTED: Robertsonq
ANSI D – 19-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:34:52 AM





1 - ENLARGED PLAN
SCALE: 1"=30'-0"

NOTES:

1. CONTRACTOR RESPONSIBLE TO PUMP DOWN AND DISPOSE OF WATER IN RAPID INFILTRATION BASINS AND REJECT STORAGE POND IN ORDER TO PERFORM WORK.
2. UNSUITABLE MATERIAL, PER SECTION 02200, THAT IS DISCOVERED WITHIN THE REJECT STORAGE POND SHALL BE EXCAVATED, HAULED AND DISPOSED OF PER SECTION 1025.
3. REJECT STORAGE POND AND RAPID INFILTRATION BASINS WERE NOT SURVEYED. CURRENT ELEVATIONS WITHIN REJECT STORAGE POND AND RAPID INFILTRATION BASINS ARE UNKNOWN. CONTRACTOR RESPONSIBLE TO FIELD SURVEY WORK AREAS AND RE-GRADE REJECT STORAGE POND AND INSTALL OVERFLOW STRUCTURES TO ELEVATIONS NOTED HEREIN.
4. PVC GEOMEMBRANE ANCHORING DETAIL PER 12/C-505.
5. PVC GEOMEMBRANE PIPE PUNCTURE SEAL DETAIL PER 3/C-510.
6. REGRADE ACCESS RAMP WITH MAX SLOPE 5:1.
7. SPACING, LOCATION, TYPE AND QUANTITY OF CHECK VALVES AND PRESSURE VENTS TO SPECIFIED BY LINER SYSTEM ENGINEER PER SECTION 02665.
8. EXISTING MATERIAL WITHIN THE REJECT STORAGE POND MAY BE USED AS BACKFILL OVER THE PVC LINER IF THE MATERIAL IS COMPLIANT WITH COMMON FILL PER SECTION 02200.
9. ADDITIONAL COMMON FILL, PER SECTION 02200, AS REQUIRED TO REGRADE THE REJECT STORAGE POND TO THE ELEVATIONS NOTED SHALL BE IMPORTED PER SECTION 01025.
10. THE 5:1 EMBANKMENT DOWN INTO THE REJECT STORAGE POND IS TO BE GRASSED WITH SOD AND OUT 5' FROM THE TOE OF SLOPE INTO THE POND. SEED AND MULCH MAY BE USED FOR GRASSING THE POND BOTTOM.
11. FOR CLARITY, RIP RAP IS NOT SHOWN AT RIB OVERFLOW STRUCTURES, REF DETAIL 1/C-508.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION
REVISIONS				

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150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

NORTH RIBS - PLAN 1

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-139
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-139
51 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-139.DWG
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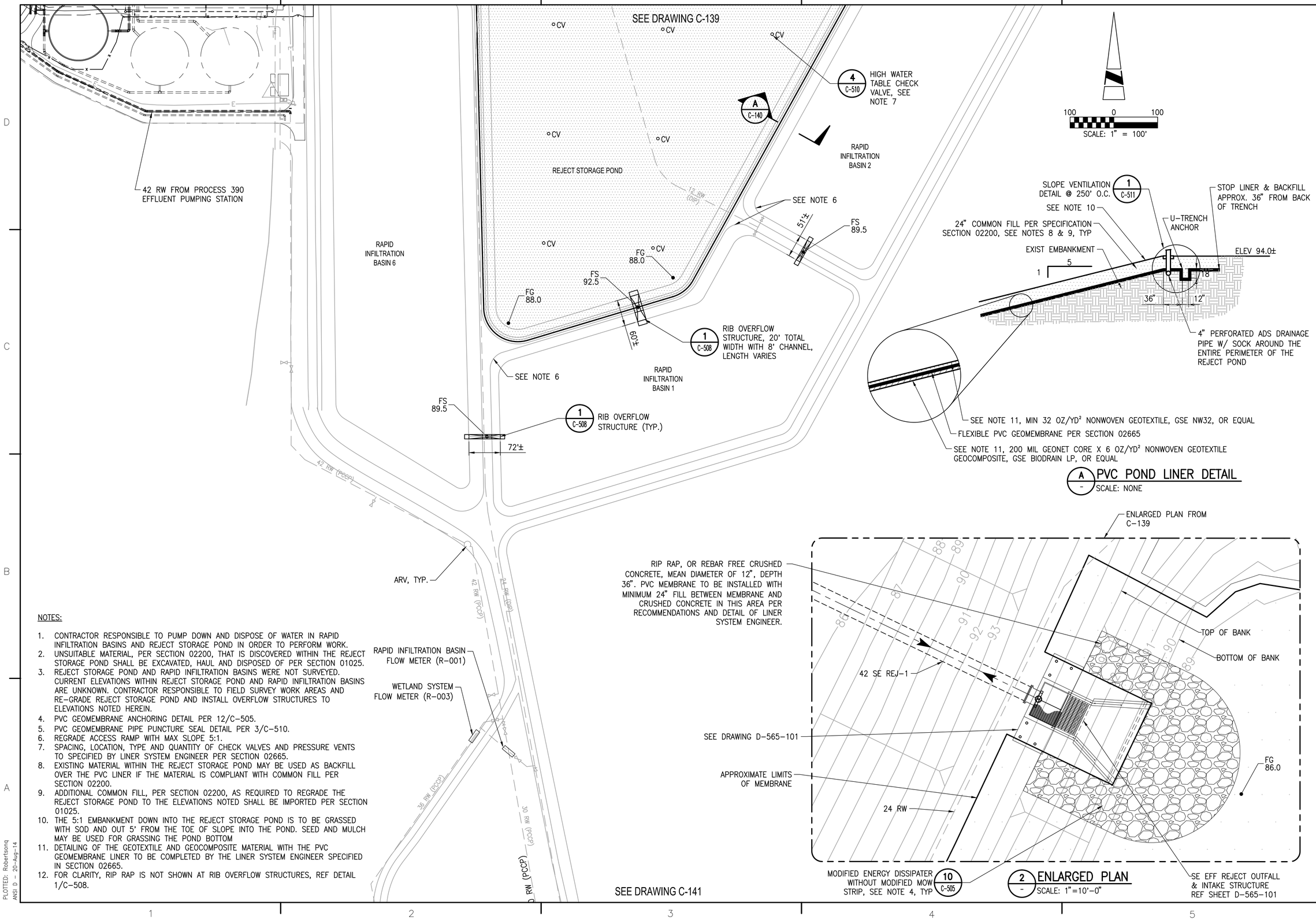
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:50:09 AM



NOTES:

1. CONTRACTOR RESPONSIBLE TO PUMP DOWN AND DISPOSE OF WATER IN RAPID INFILTRATION BASINS AND REJECT STORAGE POND IN ORDER TO PERFORM WORK.
2. UNSUITABLE MATERIAL, PER SECTION 02200, THAT IS DISCOVERED WITHIN THE REJECT STORAGE POND SHALL BE EXCAVATED, HAUL AND DISPOSED OF PER SECTION 01025.
3. REJECT STORAGE POND AND RAPID INFILTRATION BASINS WERE NOT SURVEYED. CURRENT ELEVATIONS WITHIN REJECT STORAGE POND AND RAPID INFILTRATION BASINS ARE UNKNOWN. CONTRACTOR RESPONSIBLE TO FIELD SURVEY WORK AREAS AND RE-GRADE REJECT STORAGE POND AND INSTALL OVERFLOW STRUCTURES TO ELEVATIONS NOTED HEREIN.
4. PVC GEOMEMBRANE ANCHORING DETAIL PER 12/C-505.
5. PVC GEOMEMBRANE PIPE PUNCTURE SEAL DETAIL PER 3/C-510.
6. REGRADE ACCESS RAMP WITH MAX SLOPE 5:1.
7. SPACING, LOCATION, TYPE AND QUANTITY OF CHECK VALVES AND PRESSURE VENTS TO SPECIFIED BY LINER SYSTEM ENGINEER PER SECTION 02665.
8. EXISTING MATERIAL WITHIN THE REJECT STORAGE POND MAY BE USED AS BACKFILL OVER THE PVC LINER IF THE MATERIAL IS COMPLIANT WITH COMMON FILL PER SECTION 02200.
9. ADDITIONAL COMMON FILL, PER SECTION 02200, AS REQUIRED TO REGRADE THE REJECT STORAGE POND TO THE ELEVATIONS NOTED SHALL BE IMPORTED PER SECTION 01025.
10. THE 5:1 EMBANKMENT DOWN INTO THE REJECT STORAGE POND IS TO BE GRASSED WITH SOD AND OUT 5' FROM THE TOE OF SLOPE INTO THE POND. SEED AND MULCH MAY BE USED FOR GRASSING THE POND BOTTOM
11. DETAILING OF THE GEOTEXTILE AND GEOCOMPOSITE MATERIAL WITH THE PVC GEOMEMBRANE LINER TO BE COMPLETED BY THE LINER SYSTEM ENGINEER SPECIFIED IN SECTION 02665.
12. FOR CLARITY, RIP RAP IS NOT SHOWN AT RIB OVERFLOW STRUCTURES, REF DETAIL 1/C-508.

REVISIONS				
MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
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WILLIAM D. MARSHALL, PE
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

NORTH RIBS - PLAN 2

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-139
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-140

52 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-139.DWG
LAST UPDATE: Wednesday, August 20, 2014 10:56:10 AM
PLOT DATE: Wednesday, August 20, 2014 10:26:07 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14

SEE DRAWING C-140

30 RW (PCCP)

1/- CURTIS H. STANTON ENERGY CENTER FLOWMETER (R-002)

100 0 100
SCALE: 1" = 100'

30 RW (DIP)

SEE NOTE 3

62'±

FS 87.5

RAPID INFILTRATION BASIN 14

53'±

FS 87.5

RAPID INFILTRATION BASIN 13

53'±

FS 87.5

SEE NOTE 3

16 RW (DIP)

36 RW (PCCP)

RAPID INFILTRATION BASIN 7

FS 87.5

58'±

1/C-508 RIB OVERFLOW STRUCTURE (TYP.)

RAPID INFILTRATION BASIN 8

SEE NOTE 3

SEE NOTE 3

FS 87.5

53'±

REJECT STORAGE POND 2

RAPID INFILTRATION BASIN 9

ARV, TYP.

SEE DRAWING C-142

REMOVE EXISTING ARV. REUSE EXISTING ISOLATION VALVE AND CONNECTION. INSTALL 3V1230 PER DETAIL 4/D-503

1/- ARV REPLACEMENT
SCALE: N.T.S.

NOTES:

1. CONTRACTOR RESPONSIBLE TO PUMP DOWN AND DISPOSE OF WATER IN RAPID INFILTRATION BASINS AND REJECT STORAGE POND IN ORDER TO PERFORM WORK.
2. REJECT STORAGE POND AND RAPID INFILTRATION BASINS WERE NOT SURVEYED. CURRENT ELEVATIONS WITHIN REJECT STORAGE POND AND RAPID INFILTRATION BASINS ARE UNKNOWN. CONTRACTOR RESPONSIBLE TO FIELD SURVEY WORK AREAS AND RE-GRADE REJECT STORAGE POND AND INSTALL OVERFLOW STRUCTURES TO ELEVATIONS NOTED HEREIN.
3. REGRADE ACCESS RAMP WITH MAX SLOPE 5:1.
4. FOR CLARITY, RIP RAP IS NOT SHOWN AT RIB OVERFLOW STRUCTURES, REF DETAIL 1/C-508.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

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150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

SOUTH RIBS - PLAN 1

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-139
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-141

53 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-139.DWG
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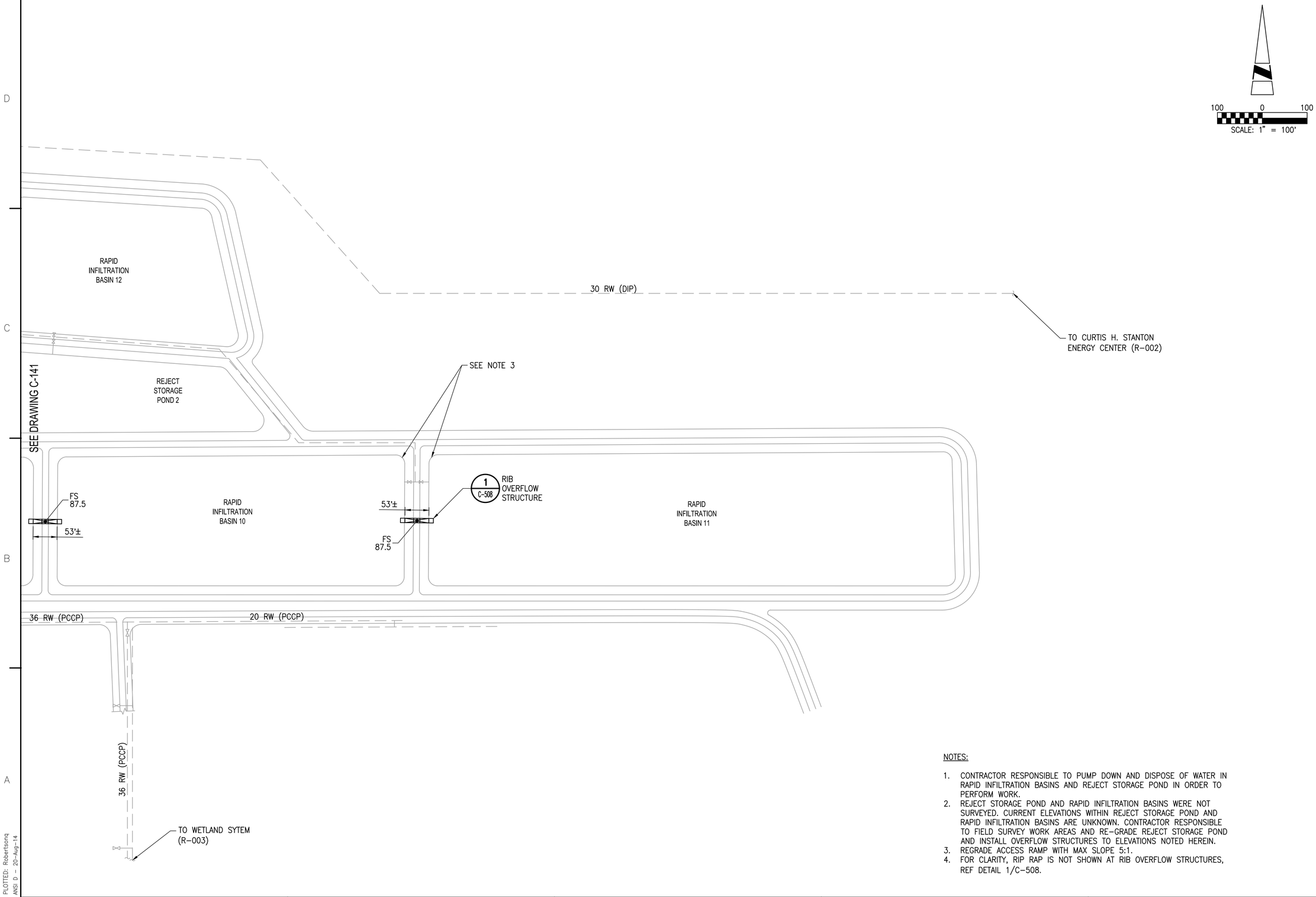
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:33:53 AM



NOTES:

1. CONTRACTOR RESPONSIBLE TO PUMP DOWN AND DISPOSE OF WATER IN RAPID INFILTRATION BASINS AND REJECT STORAGE POND IN ORDER TO PERFORM WORK.
2. REJECT STORAGE POND AND RAPID INFILTRATION BASINS WERE NOT SURVEYED. CURRENT ELEVATIONS WITHIN REJECT STORAGE POND AND RAPID INFILTRATION BASINS ARE UNKNOWN. CONTRACTOR RESPONSIBLE TO FIELD SURVEY WORK AREAS AND RE-GRADE REJECT STORAGE POND AND INSTALL OVERFLOW STRUCTURES TO ELEVATIONS NOTED HEREIN.
3. REGRADE ACCESS RAMP WITH MAX SLOPE 5:1.
4. FOR CLARITY, RIP RAP IS NOT SHOWN AT RIB OVERFLOW STRUCTURES, REF DETAIL 1/C-508.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

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EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

SOUTH RIBS - PLAN 2

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-139
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-142

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-139.DWG
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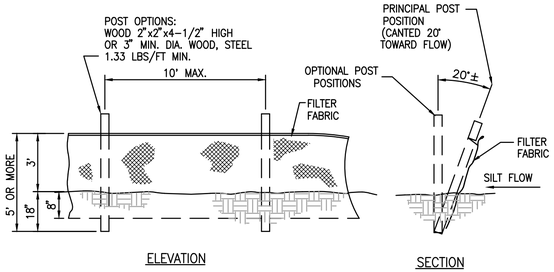
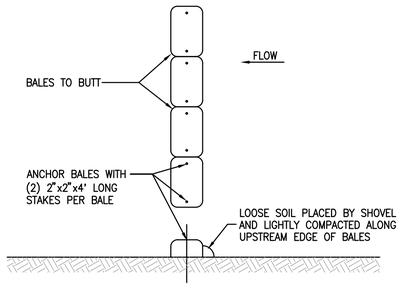
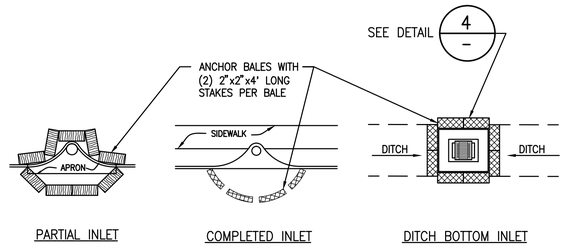
PLOTTED: Robertsonq
ANSI D - 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:35:36 AM



1 TYPICAL SILT FENCE
SCALE: NONE

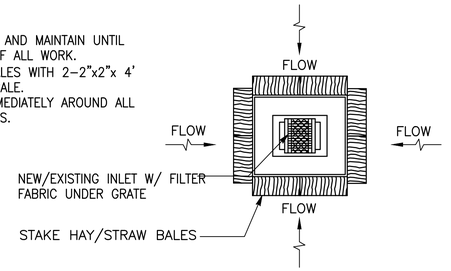


2 TYPICAL STAKED HAY BALES
SCALE: NONE

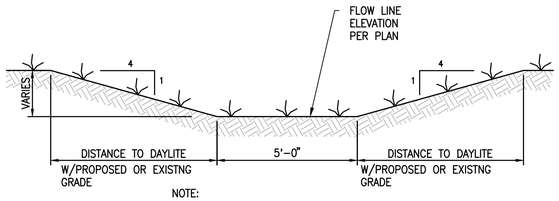


3 PROTECTION AROUND INLETS OR SIMILAR STRUCTURES
SCALE: NONE

NOTES:
1. CONSTRUCT AND MAINTAIN UNTIL COMPLETION OF ALL WORK.
2. ANCHOR BALES WITH 2–2"x2"x 4' STAKES PER BALE.
3. INSTALL IMMEDIATELY AROUND ALL EXISTING INLETS.

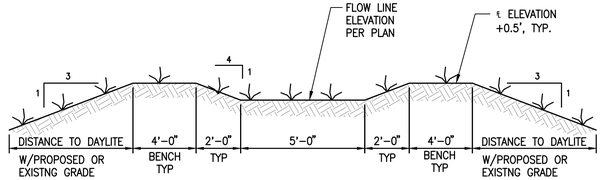


4 PROTECTION AROUND DITCH BOTTOM INLETS
SCALE: NONE



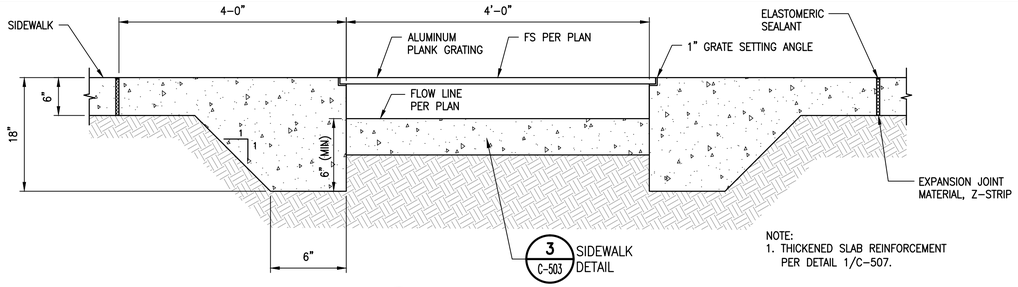
NOTE:
1. SWALE COMPACTION AND SODDING SHALL BE PER SPECIFICATION 02810 AND IN CONJUNCTION WITH ORANGE COUNTY STANDARDS.

5 SWALE SECTION IN CUT
SCALE: NONE



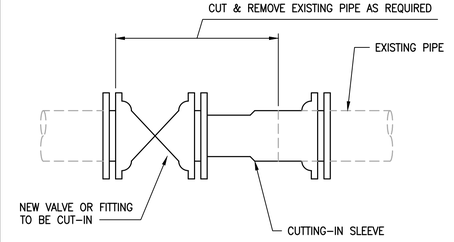
NOTE:
1. SWALE COMPACTION AND SODDING SHALL BE PER SPECIFICATION 02810 AND IN CONJUNCTION WITH ORANGE COUNTY STANDARDS.

6 SWALE SECTION IN FILL
SCALE: NONE

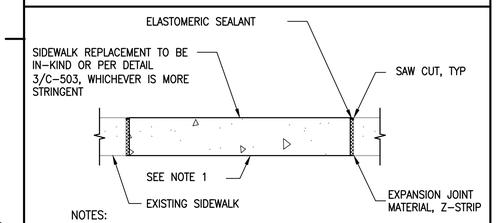


NOTE:
1. THICKENED SLAB REINFORCEMENT PER DETAIL 1/C–507.

7 SWALE UNDER SIDEWALK DETAIL
SCALE: NONE

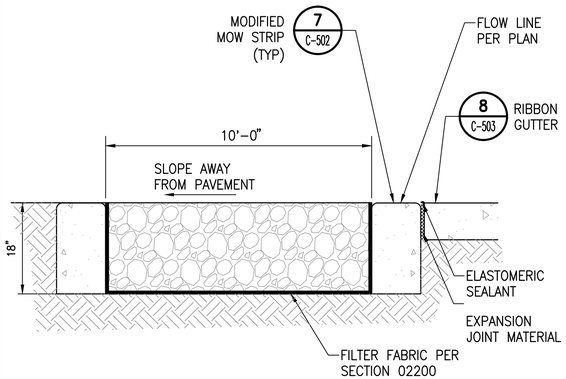


8 CUTTING–IN SLEEVE DETAIL
SCALE: NONE



NOTES:
1. COMPACT SUBGRADE UNDER REPLACEMENT SIDEWALK TO 98% OF THE MODIFIED PROCTOR MAXIMUM DENSITY (AASHTO T–180)
2. CONTRACTOR TO UTILIZE FOR ALL DAMAGED SIDEWALK FROM CONSTRUCTION.
3. REFERENCE DETAIL 3/C–503

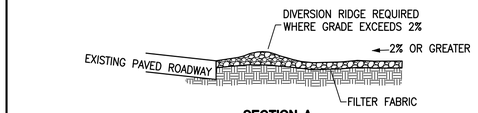
9 SIDEWALK REPLACEMENT DETAIL
SCALE: NONE



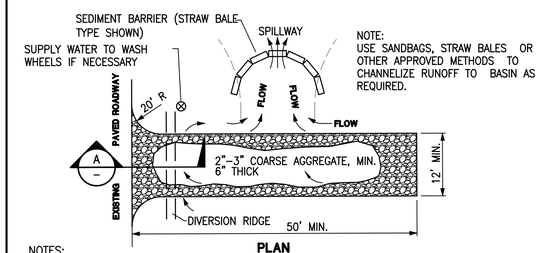
NOTES:

1. RIP RAP, OR REBAR FREE CRUSHED CONCRETE, MEAN DIAMETER 6", DEPTH 18".
2. COMPACT SUBGRADE TO A MINIMUM DENSITY THE EQUIVALENT TO 98% OF THE MODIFIED PROCTOR MAXIMUM DENSITY (AASHTO T–180), AT DEPTH OF 12".
3. TRANSITION 6" TYPE "D" CURB TO MOW. STRIP ALONG ENERGY DISSIPATER. MODIFIED MOW STRIP TO ENCOMPASS ENERGY DISSIPATER.
4. RIP RAP, OR REBAR FREE CRUSHED CONCRETE, MEAN DIAMETER 12", DEPTH 36", FOR STRUCTURES IN REJECT STORAGE POND

10 ENERGY DISSIPATER
SCALE: NONE



SECTION A

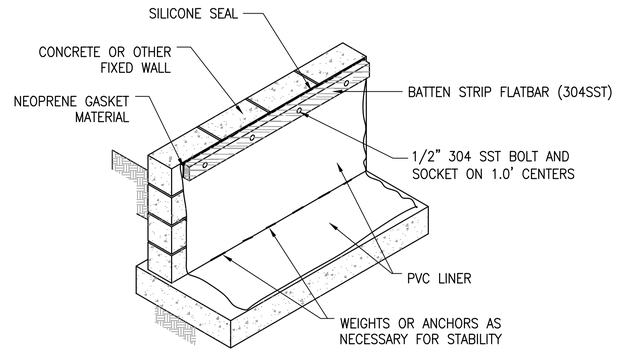


PLAN

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. LOCATION OF THE ENTRANCE TO BE AS REQUIRED PER SWPPP & COORDINATED WITH OWNER.

11 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
SCALE: NONE



12 PVC GEOMEMBRANE ANCHORING DETAIL
SCALE: NONE

MARK	DATE	MADE BY	CHECKED	DESCRIPTION
				REVISIONS

AECOM
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150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB–8115

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EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

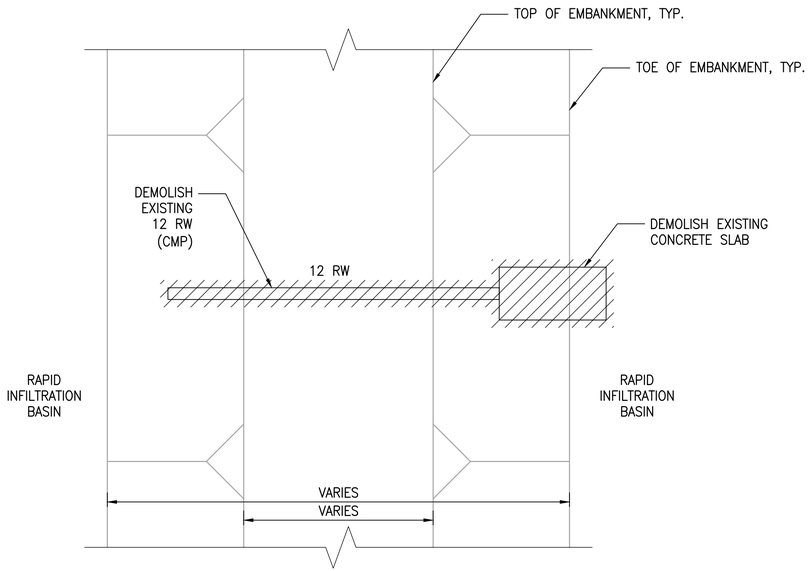
CIVIL DETAILS

CIVIL

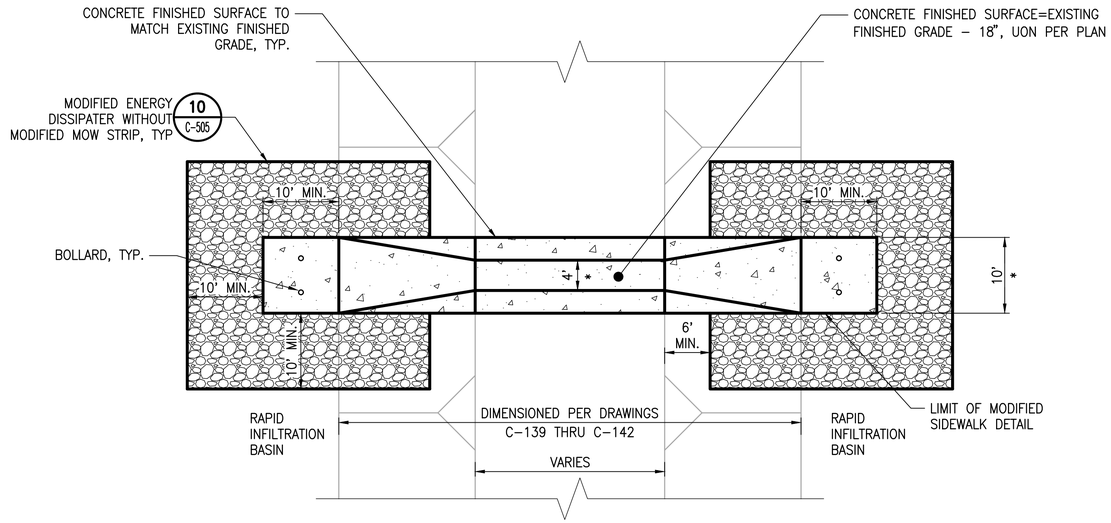
PROJECT NO:	60222491
CAD DWG FILE:	C–505
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-505
62 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\CVL-505.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:41:48 AM
PLOTTED: Robertsonq
ANSI D – 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:35:47 AM



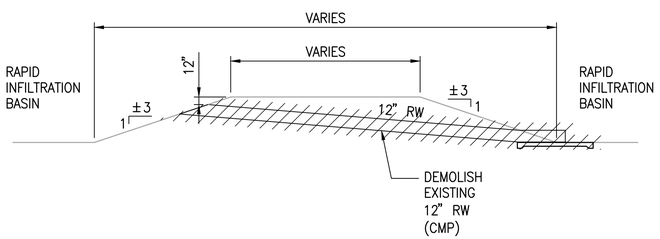
DEMOLITION PLAN



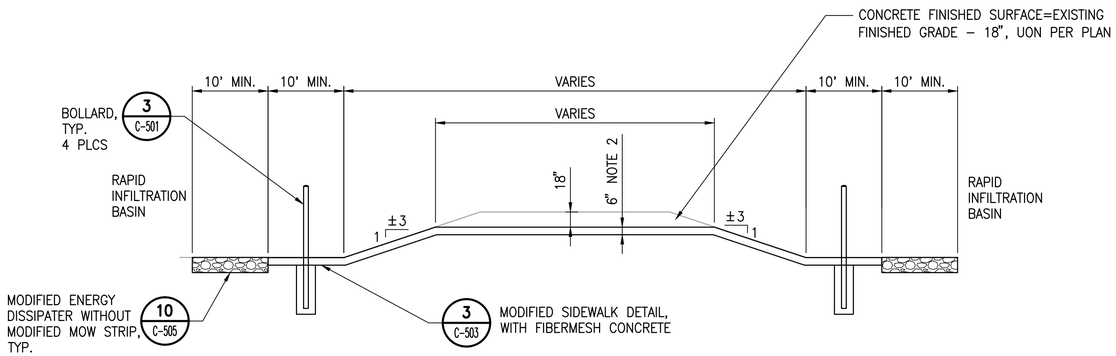
* NOTE:

1. WIDTH TO BE MODIFIED FOR OVERFLOW STRUCTURE FROM REJECT STORAGE POND TO RIBS 1–3.

IMPROVEMENT PLAN



DEMOLITION SECTION



IMPROVEMENT SECTION

1 / – RIB OVERFLOW STRUCTURE
SCALE : NONE

NOTES:

1. REJECT STORAGE POND AND RAPID INFILTRATION BASINS WERE NOT SURVEYED. CURRENT ELEVATIONS WITHIN REJECT STORAGE POND & RAPID INFILTRATION BASINS ARE UNKNOWN. CONTRACTOR RESPONSIBLE TO FIELD SURVEY WORK AREA & REGRADE REJECT STORAGE POND AND INSTALL OVERFLOW STRUCTURES TO ELEVATIONS NOTED HEREIN.
2. WHERE INSTALLED WITHIN BERM WITH ACCESS ROAD, THICKNESS OF CONCRETE AT TOP OF BERM (FULL WIDTH OF BERM) TO BE 8" THICK WITH REBAR #5@8 EW.

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552
CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

CIVIL DETAILS

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C–508
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-508

65 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-508.DWG
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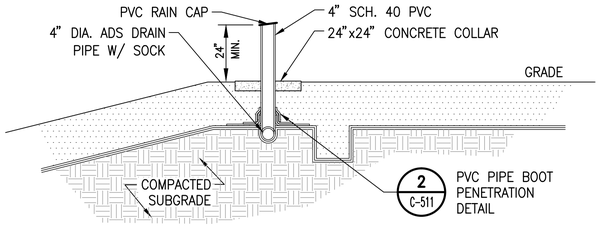
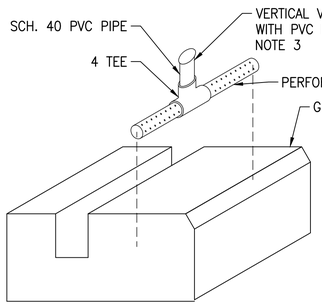
PLOTTED: Robertsonq
ANSI D – 19-Aug-14
PLOT DATE: Wednesday, August 20, 2014 8:35:50 AM



SECTION VIEW AT TOP OF SLOPE

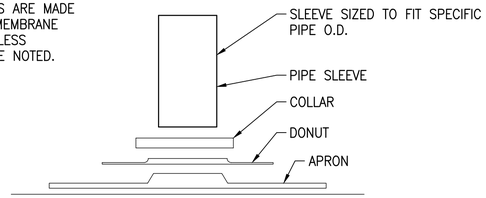


PERSPECTIVE VIEW OF ANCHOR TRENCH

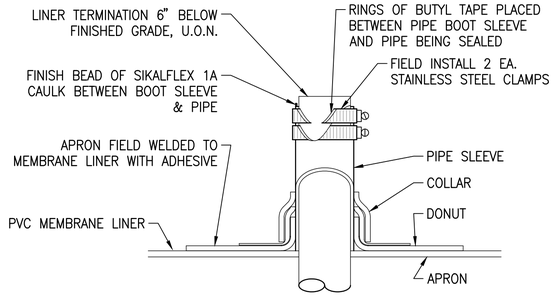
NOTES:
1. GEOCOMPOSITE LAYER SHALL TERMINATE WELL WITHIN THE INSIDE OF THE ANCHOR TRENCH TO PREVENT STORM & IRRIGATION WATER INFILTRATION.
2. COAT EXPOSED PVC PIPE AND RAIN CAP IN ACCORDANCE WITH SYSTEM NO. 41 AND SECTION 09900.
3. SPACING TO BE SPECIFIED BY LINER SYSTEM ENGINEER PER SECTION 02665.

1 SLOPE VENTILATION DETAIL
SCALE: NONE

NOTE:
1. ALL PARTS ARE MADE OF PVC MEMBRANE LINER UNLESS OTHERWISE NOTED.

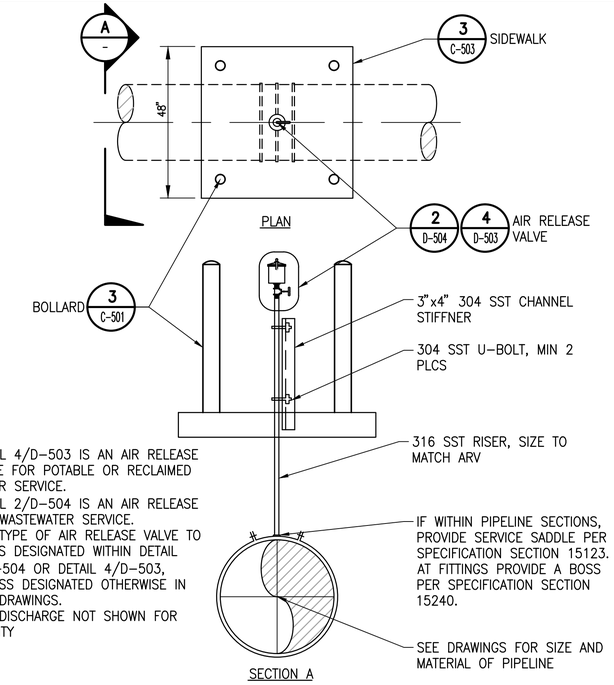


EXPLODED VIEW



CUT-AWAY VIEW OF INSTALLED PIPE BOOT

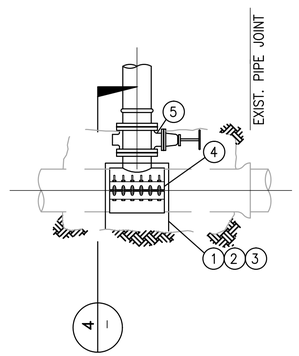
2 PVC PIPE BOOT PENETRATION DETAIL
SCALE: NONE



SECTION A

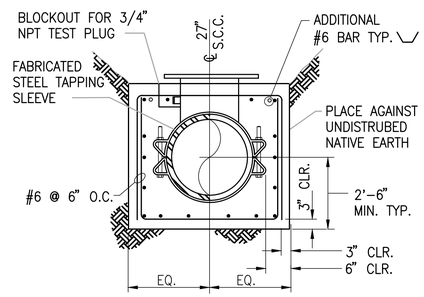
NOTES:
1. DETAIL 4/D-503 IS AN AIR RELEASE VALVE FOR POTABLE OR RECLAIMED WATER SERVICE.
2. DETAIL 2/D-504 IS AN AIR RELEASE FOR WASTEWATER SERVICE.
3. THE TYPE OF AIR RELEASE VALVE TO BE AS DESIGNATED WITHIN DETAIL 2/D-504 OR DETAIL 4/D-503, UNLESS DESIGNATED OTHERWISE IN THE DRAWINGS.
4. ARV DISCHARGE NOT SHOWN FOR CLARITY

5 ABOVE GRADE AIR RELEASE VALVE
SCALE: NONE



1. POTHOLE PROPOSED LOCATIONS OF THRUST BLOCK-COLLARS, LINE STOPS.
2. EXCAVATE AROUND THE PIPE AT THE PROPOSED LINE STOP LOCATIONS. LIMIT EXCAVATION TO THE AREA IMMEDIATELY BEYOND THE LIMITS OF THE STEEL TAPPING SLEEVE. SMOOTH ANY ROUGHNESS WHICH MIGHT INHIBIT SEALING BY THE TAPPING SLEEVE, ORIENT THE LINESTOP VERTICALLY.
3. TAPPING SLEEVE.
4. CONSTRUCT REINFORCED CONCRETE ENCASEMENT AROUND THE PIPE AND TAPPING SLEEVE ASSEMBLY PER SECTION 4.
5. TAPPING VALVE.

3 LINESTOP DETAIL
SCALE: 1/4" = 1'-0"



NOTE:
REFERENCE SECTION 02282 FOR CRITERIA TO SIZE TAPPING SLEEVE ENCASEMENT.

4 TAPPING SLEEVE ENCASEMENT DETAIL
SCALE: N.T.S.

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

CIVIL DETAILS

CIVIL

PROJECT NO:	60222491
CAD DWG FILE:	C-511
DESIGNED BY:	WDM
DRAWN BY:	QRR/DLP
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

C-511

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\C\C-511.DWG
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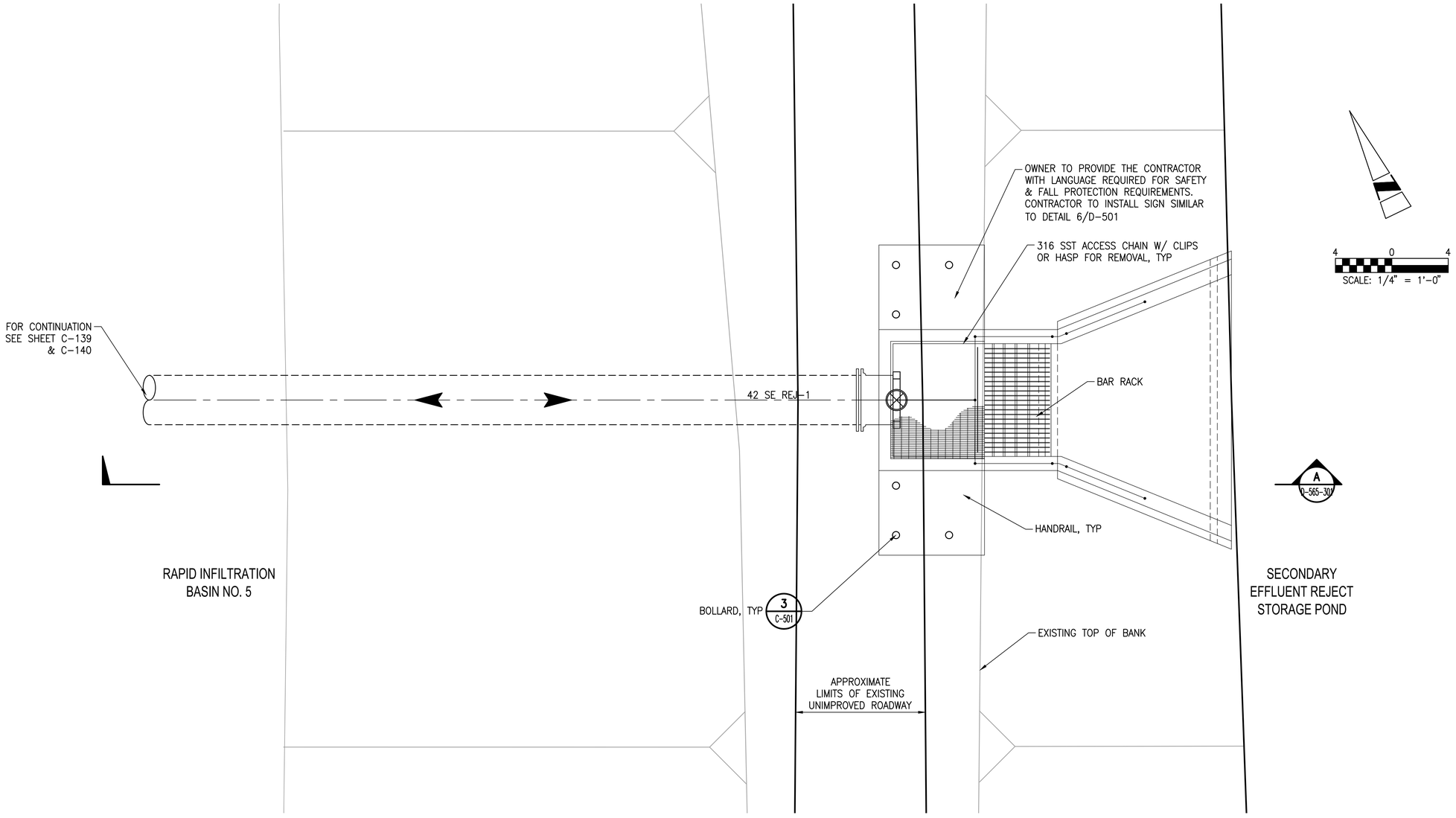
PLOT DATE: Wednesday, August 20, 2014 8:53:09 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14



PLAN
SCALE: 1/4" = 1'-0"

NOTES:

1. SEE SHEET C-140 FOR LIMTS OF CRUSHED CONCRETE & PVC MEMBRANE.
2. OWNER TO PROVIDE FALL PROTECTION ANCHORAGE TO CONTRACTOR FOR INSTALLATION.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552

CERTIFICATE OF AUTHORIZATION NO. EB-8115

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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

SE EFF REJECT OUTFALL & INTAKE STRUCTURE PLAN

MECHANICAL PROCESS

PROJECT NO:	60222491
CAD DWG FILE:	D-565-101
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

D-565-101

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\D\D-565-101.DWG
LAST UPDATE: Tuesday, August 19, 2014 4:05:27 PM
PLOT DATE: Wednesday, August 20, 2014 9:36:06 AM
PLOTTED: Robertsonq
ANSI D - 19-Aug-14

A SECTION
SCALE: 1/2" = 1'-0"

2 0 2
SCALE: 1/2" = 1'-0"

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
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CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

SE EFF REJECT OUTFALL & INTAKE STRUCTURE SECTION

MECHANICAL PROCESS

PROJECT NO:	60222491
CAD DWG FILE:	D-565-301
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

D-565-301

279 OF 527

PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\D\D-565-301.DWG
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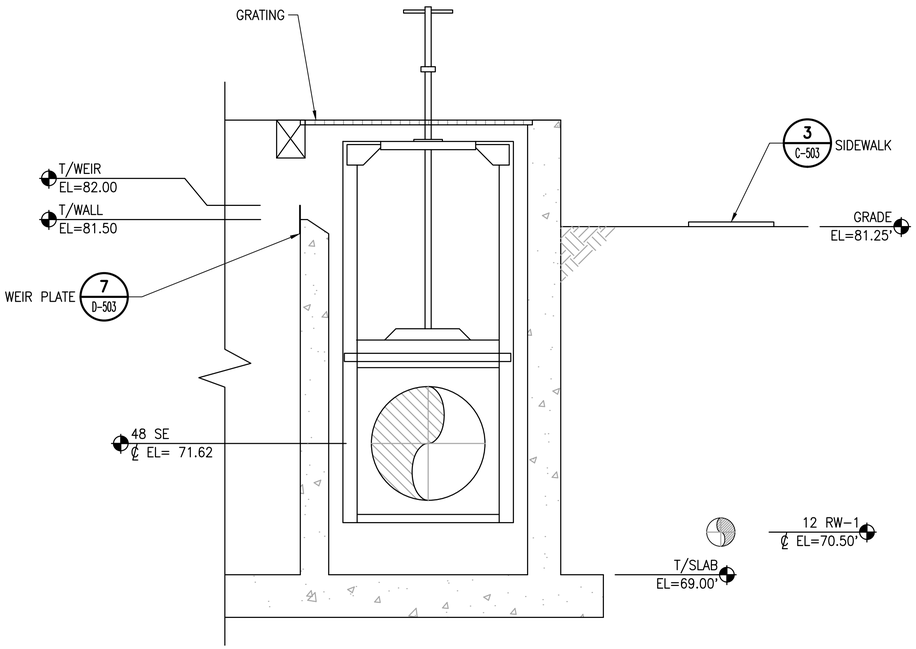
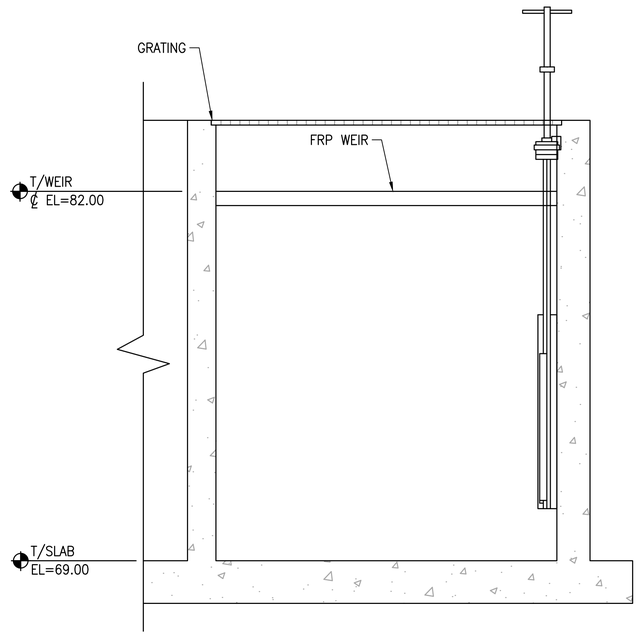
PLOTTED: Robertsonq
ANSI D - 19-Aug-14



A SECTION
SCALE: 3/8" = 1'-0"



B SECTION
SCALE: 3/8" = 1'-0"

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

REVISIONS

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
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ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

CHLORINE CONTACT TANK SECTIONS

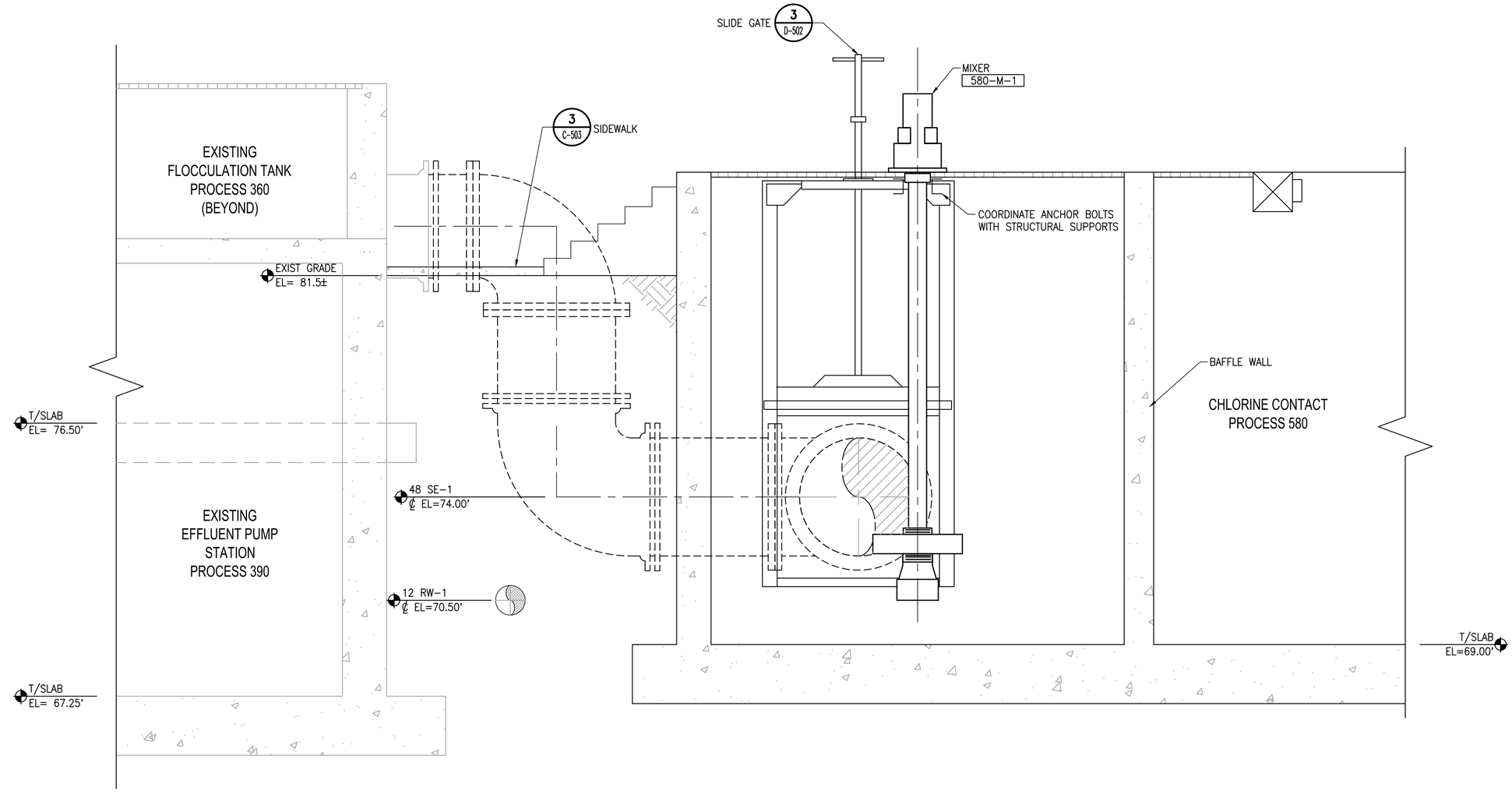
MECHANICAL PROCESS

PROJECT NO:	60222491
CAD DWG FILE:	D-580-301
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

D-580-301

283 OF 527

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\D\D-580-301.DWG
LAST UPDATE: Wednesday, August 20, 2014 7:20:59 AM
PLOT DATE: Wednesday, August 20, 2014 9:36:34 AM
PLOTTED: Robertsonq
ANSI D - 20-Aug-14



C SECTION
SCALE: 1/2" = 1'-0"

REVISIONS

MARK	DATE	MADE BY	CHECKED	DESCRIPTION

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552
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FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

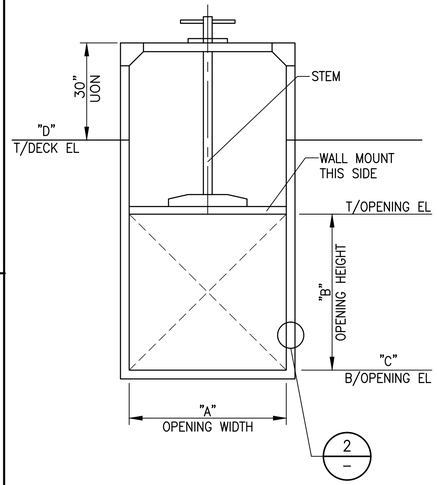
CHLORINE CONTACT TANK
SECTION
MECHANICAL PROCESS

PROJECT NO:	60222491
CAD DWG FILE:	D-580-302
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

D-580-302
284 OF 527

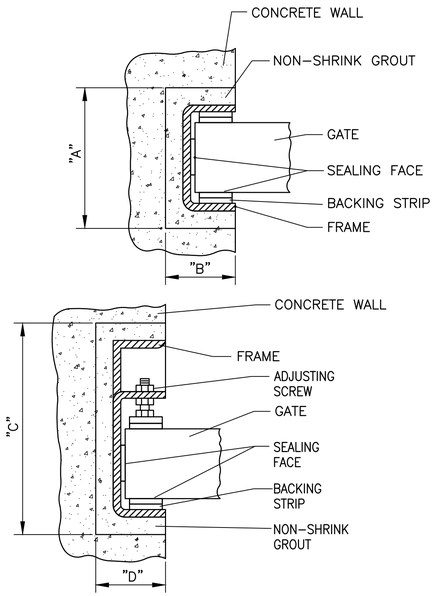
PATH/FILENAME: X:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\D\D-580-302.DWG
LAST UPDATE: Wednesday, August 20, 2014 8:22:48 AM
PLOTTED: Robertsonq
ANSI D – 20-Aug-14
PLOT DATE: Wednesday, August 20, 2014 9:36:42 AM

GATE SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. PROVIDE TANDEM STEMS GUIDES WHERE REQUIRED PER SECTION 11281 AND 11284. INSTALL GATES IN ACCORDANCE WITH THE DRAWINGS SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS.



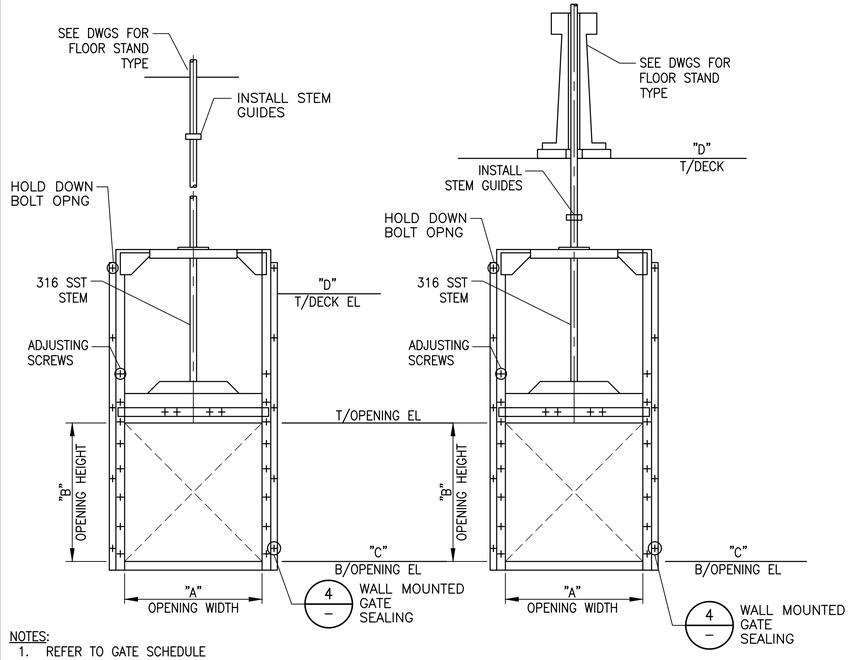
NOTES:
1. REFER TO GATE SCHEDULE IN SPECIFICATIONS 11281 AND 11284 FOR DIMENSIONS A, B, C, AND D.
2. GATE TO OPEN TO EXPOSE ENTIRE OPENING.

1 – CHANNEL MOUNTED SLIDE GATE
SCALE: NONE



GATE WIDTH	A	B	C	D
12"–36"	6"	3"	–	–
42"–60"	–	–	10–1/2"	3–1/2"
66"–84"	–	–	12"	4"

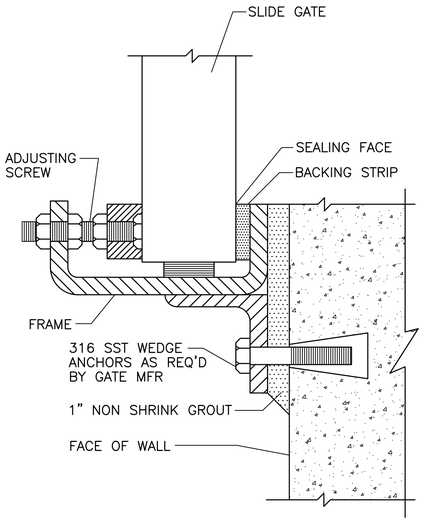
2 – CHANNEL MOUNTED SLIDE GATE SEALING
SCALE: NONE



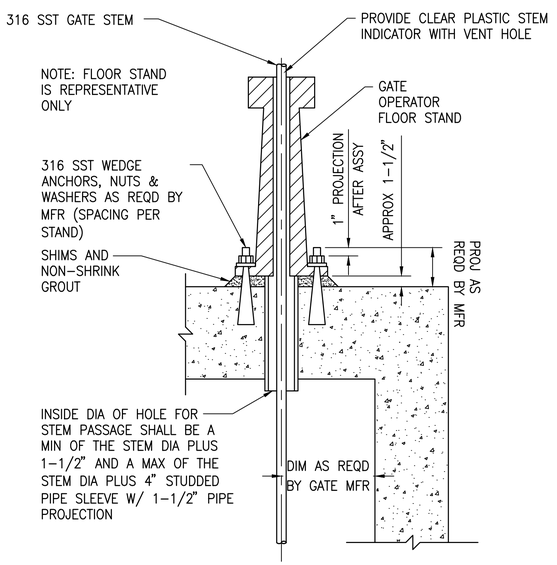
NOTES:
1. REFER TO GATE SCHEDULE IN SPECIFICATIONS 11281 AND 11284 FOR DIMENSIONS A, B, C, AND D.
2. GATE TO OPEN TO EXPOSE ENTIRE OPENING.

3 – WALL MOUNTED SLIDE GATE
SCALE: NONE

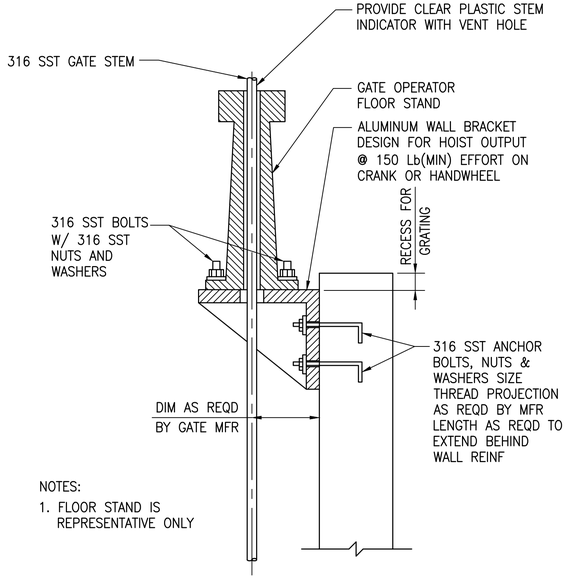
GATES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. PROVIDE TANDEM STEMS GUIDES WHERE REQUIRED PER SECTION 11281 AND 11284. INSTALL GATES IN ACCORDANCE WITH THE DRAWINGS SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS.



4 – WALL MOUNTED GATE SEALING
SCALE: NONE



5 – FLOOR STAND INSTALLATION TYPE 1
SCALE: NONE

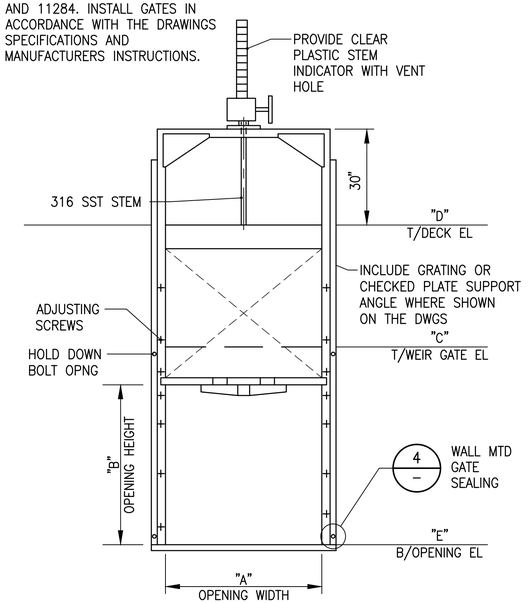


NOTES:
1. FLOOR STAND IS REPRESENTATIVE ONLY

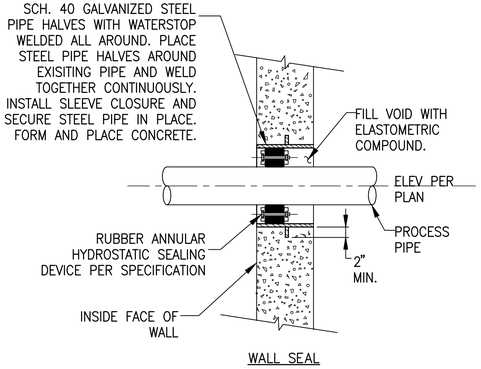
6 – FLOOR STAND TYPE 2
SCALE: NONE

GATE SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. PROVIDE TANDEM STEMS GUIDES WHERE REQUIRED PER SECTION 11281 AND 11284. INSTALL GATES IN ACCORDANCE WITH THE DRAWINGS SPECIFICATIONS AND MANUFACTURERS INSTRUCTIONS.

REFER TO GATE SCHEDULE IN SPECIFICATIONS 11281 AND 11284 FOR DIMENSIONS AND ELEVATIONS



7 – WALL MOUNTED WEIR GATE
SCALE: NONE



WALL SEAL

8 – LINK TYPE SLEEVE CLOSURE THRU NEW WALL AT EXISTING PIPE
SCALE: NONE

MARK	DATE	MADE BY	CHECKED	DESCRIPTION
				REVISIONS

AECOM
AECOM TECHNICAL SERVICES, INC.
150 NORTH ORANGE AVENUE, SUITE 200
ORLANDO, FLORIDA 32801
PHONE 407.843.6552
CERTIFICATE OF AUTHORIZATION NO. EB-8115

WILLIAM D. MARSHALL, PE
FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
PHASE V IMPROVEMENTS

PROCESS DETAILS

MECHANICAL PROCESS

PROJECT NO:	60222491
CAD DWG FILE:	D–502
DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

D-502

PATH/FILENAME: K:\ORANGE COUNTY\EASTERN WRF\60222491_EWRF_5-FINAL-DESIGN\000 CAD\SHEETS\D-502.DWG
LAST UPDATE: Wednesday, August 20, 2014 10:41:53 AM
PLOT DATE: Wednesday, August 20, 2014 10:42:10 AM
PLOTTED: Robertsonq
ANSI D – 20-Aug-14

BOARD OF COUNTY COMMISSSIONERS
ORANGE COUNTY, FLORIDA

ADDENDUM NO. 8
IFB NO. Y14-748
ORANGE COUNTY EASTERN WATER RECLAMATION FACILITY
PHASE V AND CENTRIFUGE DEWATERING IMPROVEMENTS

DRAWINGS
BID PACKAGE B

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General		
1	G-001	COVER SHEET
2	G-002	INDEX OF DRAWINGS & GENERAL NOTES
3	G-003	PIPING SCHEDULE, FLOW STREAM IDENTIFICATION, AND LOCATION MAP
4	G-004	DRAFTING LEGEND
5	G-005	GENERAL ABBREVIATIONS
6	G-006	PROCESS FLOW DIAGRAM PH I AND II
7	G-007	PROCESS FLOW DIAGRAM PH III, IV, AND V
8	G-008	CHEMICAL STORAGE BUILDING POLYMER SYSTEM FLOW SCHEMATIC
Civil		
9	C-100	EXISTING SITE PLAN
10	C-101	CIVIL KEY PLAN AND HORIZONTAL & VERTICAL CONTROL PLAN
11	C-103	DEMOLITION PLAN
12	C-104	YARD PIPING PLAN
13	C-105	PAVING GRADING & DRAINAGE PLAN
14	C-106	CIVIL DATA TABLES
15	C-501	CIVIL DETAILS
16	C-502	CIVIL DETAILS
17	C-503	CIVIL DETAILS
18	C-504	CIVIL DETAILS
19	C-505	CIVIL DETAILS
20	C-506	CIVIL DETAILS
21	C-507	CIVIL DETAILS
22	C-508	CIVIL DETAILS
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23	A-650-001	CENTRIFUGE DEWATERING BUILDING GENERAL NOTES
24	A-650-100	CENTRIFUGE DEWATERING BUILDING LIFE SAFETY PLAN
25	A-650-101	CENTRIFUGE DEWATERING BUILDING FLOOR PLAN
26	A-650-201	CENTRIFUGE DEWATERING BUILDING ELEVATIONS
27	A-650-301	CENTRIFUGE DEWATERING BUILDING SECTIONS
28	A-650-801	CENTRIFUGE DEWATERING BUILDING DETAILS
29	A-650-802	CENTRIFUGE DEWATERING BUILDING DETAILS
Structural		
30	S-001	STRUCTURAL GENERAL NOTES
31	S-150-101	NORTH ELECTRICAL BUILDING STRUCTURAL PLAN
32	S-650-101	CENTRIFUGE DEWATERING BUILDING FOUNDATION PLAN
33	S-650-102	CENTRIFUGE DEWATERING BUILDING SLAB PLAN
34	S-650-103	CENTRIFUGE DEWATERING BUILDING PLATFORM PLAN
35	S-650-104	CENTRIFUGE DEWATERING BUILDING ROOF PLAN
36	S-650-301	CENTRIFUGE DEWATERING BUILDING STRUCTURAL SECTIONS I
37	S-650-302	CENTRIFUGE DEWATERING BUILDING STRUCTURAL SECTIONS II
38	S-501	STRUCTURAL STANDARD DETAILS I
39	S-502	STRUCTURAL STANDARD DETAILS II
40	S-503	STRUCTURAL STANDARD DETAILS III
41	S-504	STRUCTURAL STANDARD DETAILS IV
42	S-505	STRUCTURAL STANDARD DETAILS V

Sheet List Table

NO.	SHEET NO.	SHEET TITLE
Mechanical Process		
43	D-600-100	BIOSOLIDS OVERALL PROCESS PLAN
44	D-610-101	PH I-II WAS BOOSTER PUMP STATION PLAN
45	D-610-301	PH I-II WAS BOOSTER PUMP STATION SECTION
46	D-620-101	WAS HOLDING TANKS OVERALL PLAN
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SURVEYORS NOTES

1. HORIZONTAL ROTATION AND COORDINATES ARE BASED ON THE ORANGE COUNTY GIS SYSTEM, (FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 1983/90 ADJUSTMENT). THESE COORDINATES WERE DERIVED FROM A FIELD TRAVERSE THROUGH PUBLISHED POSITIONS.

2. ELEVATIONS SHOWN HEREON ARE BASED ON ORANGE COUNTY DATUM (NGVD 29) AS DERIVED FROM BENCHMARK C-1022-005, AN ORANGE COUNTY DISC IN CURB INLET AT THE NE CORNER OF ALAFAYA TRAIL AND GOLFWAY BLVD, ELEVATION 83.574 AND BENCHMARK L-668-011, AN ORANGE COUNTY DISC IN HEADWALL ON THE NORTH SIDE OF ALAFAYA TRAIL, WEST OF PLANT SITE, ELEVATION 80.857.

GENERAL NOTES

1. THE EXISTING TOPOGRAPHICAL FEATURES SHOWN ON THE DRAWINGS WERE OBTAINED FROM GROUND SURVEY AND REPRESENT CONDITIONS AS THEY EXIST AS OF NOVEMBER 2006, JUNE 2012 AND OCTOBER 2012. AS PART OF THE BID PROCESS, AND PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK AND MAKE ALL NECESSARY INVESTIGATIONS TO THOROUGHLY DEFINE ALL DIFFICULTIES INVOLVED IN THE COMPLETION OF ALL WORK REQUIRED PURSUANT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. ALL PIPING AND/OR APPURTENANCES CONNECTING TO ADJACENT CONSTRUCTION SHALL BE PLUGGED IF ADJACENT WORK HAS NOT BEEN COMPLETE.
3. THE DRAWINGS DEPICT THE APPROXIMATE LOCATIONS, ELEVATIONS AND DIMENSIONS AS SHOWN ON THE PLANS OF EXISTING UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INCLUDE IN THE BID TO VERIFY ALL UTILITY LOCATIONS, ELEVATIONS AND DIMENSIONS BY UTILIZING EXPLORATORY INVESTIGATION AND EXCAVATIONS. VERIFICATION OF EXISTING UTILITY LOCATION SHALL BE CONDUCTED SUFFICIENTLY IN ADVANCE OF CONSTRUCTION TO ALLOW RESOLUTION OF CONFLICTS IN A TIMELY MANNER. IF A POTENTIAL CONFLICT IS LOCATED, OR AN EXISTING UTILITY OR STRUCTURE LOCATED IN A DIFFERENT LOCATION THAN IS ILLUSTRATED HEREIN, THE CONTRACTOR IS TO NOTIFY THE RESIDENT PROJECT REPRESENTATIVE IMMEDIATELY. AT A MINIMUM, THE FOLLOWING INFORMATION SHALL BE PROVIDED BY THE CONTRACTOR TO THE RESIDENT PROJECT REPRESENTATIVE; A DIMENSIONED ILLUSTRATION NOTING LOCATION, ELEVATION, UTILITY TYPE, MATERIAL AND SIZE.
4. RESTORE ALL PROPERTY AND INFRASTRUCTURE, INCLUDING UTILITIES DISTURBED BY CONSTRUCTION OPERATIONS TO THE CONDITIONS WHICH EXISTED PRIOR TO CONSTRUCTION OR BETTER. THE COST OF SUCH RESTORATION SHALL BE INCLUDED IN THE BID. ANY DAMAGE TO EXISTING PROPERTY, UTILITIES, STRUCTURES AND/OR SERVICES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER AS DIRECTED BY THE ENGINEER AND OWNER. REMOVE AND REPLACE ALL PIPE, CONDUIT AND CULVERTS DAMAGED DURING CONSTRUCTION, AT NO EXPENSE TO THE OWNER. CONTRACTOR SHALL REMOVE AND REPLACE, OR TEMPORARILY RELOCATE, STORM SEWERS, CULVERTS AND OTHER UTILITIES AS REQUIRED DURING THE INSTALLATION OF PIPE. CONTRACTOR SHALL PROVIDE A TEMPORARY MEANS OF CONVEYING STORMWATER. WHERE TEMPORARY SUPPORT OF UTILITIES IS REQUIRED, THE CONTRACTOR SHALL PAY ALL ASSOCIATED COSTS AND COORDINATE WITH THE OWNER AND ENGINEER.
5. THE CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEMS, WHICH MIGHT BE IMPACTED BY CONSTRUCTION AS THE WORK PROCEEDS, SO AS TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY. FOLLOW THE REQUIREMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN.
6. MAINTAIN ACCESS TO AND OPERATION OF ALL EXISTING PLANT OPERATIONS UNTIL NEW OPERATIONS HAVE BEEN ACCEPTED.
7. AT A MINIMUM, ALL WORK TO BE IN ACCORDANCE WITH THE CURRENT EDITION OF ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL.
8. STORM SEWER, GRAVITY WASTEWATER, AND RECLAIMED WATER MAINS CROSSING UNDER POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWELVE (12) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE STORM/WASTEWATER/RECLAIMED WATER PIPE JOINTS AND POTABLE WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS, BOTH PIPES SHALL BE DIP, AND THE MINIMUM VERTICAL SEPARATION SHALL BE SIX (6) INCHES. WHERE THERE IS NO ALTERNATIVE TO STORM/WASTEWATER/RECLAIMED WATER PIPES CROSSING OVER A POTABLE WATER MAIN, THE CRITERIA FOR MINIMUM TWELVE (12) INCH VERTICAL SEPARATION BETWEEN LINES AND JOINT ARRANGEMENT, AS STATED ABOVE, SHALL BE REQUIRED, AND BOTH PIPES SHALL BE DIP IRRESPECTIVE OF SEPARATION. DIP IS NOT REQUIRED FOR STORM SEWERS.
9. MAINTAIN MINIMUM SIX (6) FEET HORIZONTAL SEPARATION BETWEEN POTABLE WATER MAIN AND FINISHED/SECONDARY EFFLUENT, WASTEWATER GRAVITY MAIN, FORCE MAIN OR MIXED LIQUOR. MAINTAIN MINIMUM THREE (3) FEET CLEAR (OUTSIDE BARREL TO OUTSIDE BARREL) HORIZONTAL DISTANCE BETWEEN POTABLE WATER MAIN AND STORM SEWER.
10. FORCE MAIN CROSSING POTABLE WATER MAIN OR RECLAIMED WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND OUTSIDE OF THE POTABLE WATER MAIN OR RECLAIMED WATER MAIN WITH THE POTABLE WATER OR RECLAIMED WATER MAIN CROSSING OVER THE FORCE MAIN.
11. SOD ALL DISTURBED UNPAVED AREAS, SEED AND MULCH WILL NOT BE ALLOWED.
12. INSTALL OR CONSTRUCT STORMWATER AND DEWATERING SEDIMENT CONTROL ELEMENTS SUCH AS SILT FENCES, HAY BALES, ETC. PRIOR TO COMMENCING CONSTRUCTION. MAINTAIN SEDIMENT CONTROL ELEMENTS FOR THE DURATION OF THE PROJECT, REFER TO SPECIFICATION SECTION 02270 FOR SPECIFIC EROSION AND SEDIMENTATION CONTROL.
13. PRESERVE AND PROTECT THE EXISTING CONCRETE SIDEWALKS NOT INTENDED TO BE REMOVED DURING CONSTRUCTION. REPAIR DAMAGED SIDEWALKS PER SPEC.IFICATION SECTION 02778 AND DETAIL 9/C-505. FOR CLARITY, NOT ALL SIDEWALKS ARE SHOWN.
14. CONTRACTOR IS TO NOTE ON THE AS-BUILT DRAWINGS THE LOCATION AND ELEVATION OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION.
15. A CONSTRUCTION ASSISTANCE REQUEST (C.A.R) WILL BE REQUIRED FOR ALL CONTACT WITH EXISTING OPERATION PERSONAL I.E.: TIE IN, SPARE PARTS, TRAINING ETC.. A 7-DAY NOTICE IS REQUIRED FOR ALL C.A.R.'s.
16. ALL EXISTING PIPING REQUIRING A NEW CONNECTION IS TO BE MECHANICALLY RESTRAINED PER DETAIL 4, C-502.
17. CONSTRUCTION AREA WILL BE CLEANED UP DAILY. ALL EXCAVATIONS WILL BE BACKFILLED BY END OF DAY, OR WITH PERMISSION FROM THE RESIDENT PROJECT REPRESENTATIVE, MAY LEFT OPEN WITH PROPER SAFETY PRECAUTIONS. CONTRACTOR SHALL HANDLE ALL SPILLS, DRAINING PIPES OR TIE-IN CONNECTIONS. CONTRACTOR WILL HAVE TANKER TRUCKS AND LINE EXCAVATIONS WITH POLY LINER IN ORDER TO HANDLE SPILLS AND TO CAPTURE AND DISPOSE OF FLUIDS ENCOUNTERED.
18. POLYETHYLENE SHEET ENCASE ALL DUCTILE IRON PIPE EXCEPT FOR AIR-1, REFER TO SPECIFICATION SECTION 09954.
19. ALL ELECTRICAL BOXES, PANELS ETC... IN NON CLIMATE CONTROLLED AREAS SHALL BE 316 SST, NEMA 4X.
20. ALL DUCTILE IRON PIPING AND APPURTENANCES FOR AIR-1 SERVICE SHALL UTILIZE VITON GASKETS, REFERENCE SPECIFICATION 15240.
21. CONTRACTOR SHALL TAKE CARE TO PROVIDE PROPER GRADE, ELEVATIONS AND ALIGNMENT TO PROVIDE FOR FUTURE CONNECTIONS.
22. WHEN TRENCH EXCAVATION EXCEEDS FIVE (5) FEET IN DEPTH, PERFORM THE FOLLOWING:
    - 22.A. CONTRACTOR SHALL CONFORM TO OSHA STD. 29CFR. SECTION 1926.650 WHICH IS INCORPORATED IN FLORIDA STATE 90-96.
    - 22.B. CONTRACTOR SHALL PROVIDE WRITTEN ASSURANCE OF COMPLIANCE WITH THIS LAW.
    - 22.C. THE TRENCH SAFETY SYSTEM IS TO BE SUBMITTED BY THE CONTRACTOR.
23. ALL PIPING SHALL BE PRESSURE AND LEAK TESTED IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY PLUGS, BLOCKING, TAPS AND TESTING EQUIPMENT REQUIRED TO COMPLETE THE TESTING AS SPECIFIED.
24. ALL PIPING UNDER STRUCTURES TO BE CONCRETE ENCASED PER DETAIL 3/C-507.
25. ALL EXISTING PIPE TO BE ABANDONED TO BE GROUT FILLED.
26. THE CONTRACTOR IS ADVISED THAT HAND DIGGING MAY BE THE ONLY METHOD AVAILABLE TO AVOID PIPELINE & ELECTRICAL DUCTBANK DESTRUCTION IN MANY CONGESTED AREAS.
27. NOT ALL PIPE SUPPORTS ARE SHOWN. PIPE SUPPORTS FOR PIPING 3" AND LESS NOT SHOWN. PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH SECTION 15064.
28. STORM DRAIN IMPROVEMENTS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS.
29. THE CONTRACTOR SHALL PUMP STORMWATER, OR GROUND WATER INTRUSION INTO THE STORMWATER COLLECTION SYSTEM IF REQUIRED, REF NOTE 5.

MARK	DATE	MADE BY	CHECKED	DESCRIPTION
				REVISIONS

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AECOM TECHNICAL SERVICES, INC
150 NORTH ORANGE AVENUE, SUITE 200
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FLORIDA PROFESSIONAL LICENSE NO. 66282

ORANGE COUNTY UTILITIES DEPARTMENT
EASTERN WATER RECLAMATION FACILITY
CENTRIFUGE DEWATERING IMPROVEMENTS

INDEX OF DRAWINGS & GENERAL NOTES

GENERAL

PROJECT NO:	60276218
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DESIGNED BY:	WDM
DRAWN BY:	QRR
DEPT CHECK:	CFE
PROJ CHECK:	MDC
DATE:	OCTOBER 2013
SCALE:	AS NOTED

G-002

2 OF 114

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