

**Hydro Impact Basin**  
**Request for Information Documentation**  
**11-24-2009**

1. (Sheet E-101) The new replacement panel L-1000 is shown inside a small building designated as B1297F. Is this building permanent or will it be taken down during the new phase?  
**Response: The small building is an important storage shed that houses equipment used for testing. This building shall remain.**
2. (Sheet E-101) The three (3) new 1500 watt metal halide light fixtures are shown being mounted at the 75' level on the side of a stationary hoist platform with angle iron spanning across the opening. It appears there is a winch at the top of the platform with lifting rails on both inside legs. Will these lights interfere with the operation of the winch or is this winch going to be taken out of service?  
**Response: To be sure that new lighting fixtures do not interfere with the stationary hoist, coordinate with the Contracting Officer and Building 1297 personnel before mounting the new lights (lights may be mounted lower than indicated).**
3. (Sheet C-101) On the site plan there are three (3) 2" rigid steel conduits shown capped below grade (Area D3). Are they existing or to be added?  
**Response: The conduits are existing abandoned conduits that shall be cut off just outside the line of excavation and the ends capped.**
4. Per section 31 68 14.0041 page 5 section 3.2.2 part C. In the event an anchor should reach the required torsional strength before the minimum depth as shown on the drawings. 2 options are given.
  - a. Subsection 1 of part C "The structural engineer can approve the termination of the anchor at that depth".
  - b. Subsection 2 of part C "Remove the existing soil nail and change to a lead with fewer helical plates.
  - c. Option #1 of having the structural engineer approve termination - what engineer would review this issue, the engineer of record or an independent engineering firm contracted by the contractor?  
**Response: The "structural engineer" can be read as the "Contracting Officer."**
  - d. Option # 2 of removing & replacing anchors will cause additional time and value to the project. We would have to wait for additional anchors with fewer helicals to be ordered and delivered. It's not uncommon to alter / cut helical off of the anchor in the field to achieve the effect of option #2. Would we be allowed to alter the helical in the field if this option is chosen?  
**Response: Yes, it seems prudent to allow field alteration.**
5. Section 31 Installation Equipment 3.1.1 (b) states: Shall be capable of applying torque equal to the torque required to meet the load requirements. What are the load requirements?  
**Response: The geotechnical engineering calculations assumed a 69.3 kip tensile capacity of the helical soil nails.**
6. What are the KIP requirements for the helical anchors?  
**Response: See response to question #5.**
7. We do not see a requirement for painting or coating for the sheet piling. Will any be required?  
**Response: No painting of the sheet piling is required.**
8. Will grounding of wire mesh incased in shotcrete be required?  
**Response: No grounding of the wire mesh will be required.**
9. Discussion of a permanent dewatering system, to be left in place, was brought up during our last site visit. No requirements for a permanent system are indicated in the design documents. Is a permanent system required? If so will NASA or the contractor provide design for that system? If the contractor is to provide design, we will need NASA to provide a performance specification.

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**Response:** TBD

**Follow up question:** We now understand that the (design build) dewatering system is temporary for construction purposes only but we are to leave the sub surface wells in place. Please confirm our understanding or clarify.

**Response:** Confirmed.

10. Once the ground water is recovered is there a designated area for dewatering discharge? Are there any restrictions on discharging the water?

**Response:** No, we don't have a designated area for dewatering discharge. However, we believe that the wooded area south of 1297 would be a good place to do so. As part of the storm water construction permit, we need to have an erosion and sediment control plan, a part of which would likely need a dewatering structure to help settle out sediment (we have attached some dewatering information from the Erosion and Sediment Control handbook). As for restrictions on the discharge, they are very general in nature in that we are not to cause an area to erode, flood, do damage downstream (including harm to the organisms in the creek), and to minimize the sediment discharge. This should not be a problem with a dewatering structure and discharging through the woods. Also, the water would have to sheet flow to the storm ditch, which is also covered in grass, and then flow to the creek. Sediment should not reach the outfall due to these measures.

**Follow up question:** Will the contractor be responsible for applying and paying for the storm water construction permit? We didn't receive the dewatering information from the Erosion and Sediment Control handbook attachment. Will you Re-send that?

**Response:** Yes. For pre-construction submittals, we need to see the erosion and sediment control plan so we can forward to DCR Suffolk for review. We also need to see the SWPPP prior to construction so that NASA can review. Once reviewed/approved, the contractor can pull the storm water construction permit from DCR. The contractor shall provide a copy of the DCA coverage letter to NASA for our records. These submittals are all in the language below as well.

#### Erosion and Sediment Control Management

Land disturbing activities greater than or equal to 2,500 square feet require the Contractor to develop an Erosion and Sediment Control Plan that complies with *Virginia Erosion and Sediment Control Law and Regulations*. The law is codified at Title 10.1, Chapter 5, Article 4 of the Code of Virginia, and regulations are found at Section 4VAC30-50. The contractor shall utilize the standards and specifications of the Third Edition of the Virginia Erosion and Sediment Control Handbook as minimum standards. This plan shall be submitted to NASA for submittal to the local Department of Conservation and Recreation (DCR) Office (Suffolk, VA) for approval. The plan will be approved/disapproved by DCR within 45 days of submittal. When the plan is determined to be inadequate, DCR shall specify such modifications, terms and conditions that will permit approval of the plan. If no action is taken by DCR within 45 days, the plan shall be deemed approved and the proposed activity may proceed.

#### Stormwater Permitting

Land disturbing activities greater than or equal to 2,500 square feet require permit coverage under the Virginia Stormwater Management Program (VSMP) General Construction Permit from the Department of Conservation and Recreation (DCR). This permitting program is authorized under the Virginia Stormwater Management Act, Title 10.1, Chapter 6, Article 1.1. Prior to registering for permit coverage, the Contractor shall develop a site specific Stormwater Pollution Prevention Plan (SWPPP) according to all applicable permit requirements. The Contractor shall submit the SWPPP to the Contracting Officer and the LaRC EMO for review and approval. Once the SWPPP has been approved by the EMO, the contractor shall register for permit coverage. The contractor is responsible for permit registration fees and for adhering to all permit requirements. The contractor shall notify NASA LaRC when permit coverage has been obtained and provide a copy of DCR's permit coverage issuance letter to EMO. The contractor shall take the lead for implementing and maintaining their SWPPP during project activity. The SWPPP is to be retained along with a copy of the permit and permit coverage issuance letter at the construction site. The contractor is responsible for terminating permit coverage once the project is complete.

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11. Will the displaced ground water need to be tested? If so, please offer a performance specification.

**Response:** We would have to test the water and receive permission from HRSD or VDEQ (the state) **IF** we discharged directly to the sanitary sewer or directly out of the outfall into the creek. **Since we are discharging into the wooded area, testing would not be necessary** as most of the water should slowly percolate back into the ground.

12. How thick is the existing concrete paving that is to be demolished? Is there rebar in the paving?

**Response:** Previous attempts to find drawings of the gantry pavement have been unsuccessful. For bidding purposes, assume that the concrete slab is 8 inches thick and that it includes reinforcing steel.

13. How thick is the existing asphalt paving that is to be demolished?

**Response:** Previous attempts to find drawings of the gantry pavement have been unsuccessful. For bidding purposes, assume that the asphalt paving is 4 inches thick.

14. Is a written recycling plan required for this project?

**Response:** Section 01 74 19 (Construction and Demolition Waste Management) of the General Requirements needs to be included in the project spec package. This includes all the recycling language and requirements necessary for the project. It includes a lot of requirements that may not be totally applicable but the majority does. Not sure of the amount of asphalt paving or concrete that will be generated during the project and the amount may dictate whether recycling these items would be feasible.

**Follow up question:** Will you forward Section 01 74 19 to us?

**Response:** The section was not included in the specification because recycling was not believed to be relevant. If the contractor agrees that recycling will not take place and that material will not be removed from the site for this purpose then include such a statement in your proposal. If you believe that you will want to recycle then this is the specification language:

"Contractor/Subcontractor is responsible for maintaining records that will track the disposition of waste from construction and or deconstruction of facilities. Tracking shall be measured by submitting the total weight of materials disposed in a landfill and the weight of other materials (ex. concrete, or asphalt) diverted from a landfill. Diversion data to include, but not limited to, retained by the government, incinerated for energy recovery, recycled, composted or reused. The Contractor/ Sub-contractor shall submit documents that identify the landfill and or organization receiving this material and include related documents such as manifests, weight tickets (preferred) or receipts that verify the amounts land filled or diverted."

Therefore, the answer to the original question is "No" since nothing called a recycling plan is required but the reporting submittals detailed in the paragraph above are required if materials are recycled.

15. What are we to do with the existing on site piles of soil?

**Response:** The Government will move the piles of dirt on the south side. Need to determine what amount of dirt Contractor is referring to. We will need at least a weeks' notice.

16. We assume no hazardous or contaminated soil conditions exist on this site. Is that correct? If so, please provide information on contaminants and direction of how to abate.

**Response:** In June of 1999, extensive sampling and analysis were performed on soil in this area to determine any lead or chromium contamination. No contamination was present. So the answer to your first question is: Yes. The plan is to store the soil on-site for future restoration of the site once the need for the basin is gone. Storage requirements are the only concern here. Exceptions: If any contaminants are observed during excavation, sampling or investigation shall be done to determine characteristics. Any soil that needs to be removed from the site for any reason, applicable sampling will need to be done to remove it from the Center.

**Follow up question:** Who is responsible for the cost of the testing and disposal in the event of an "exception"?

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**Response:** It will be the Contractor's responsibility to contain/control all soil excavated from this project to eliminate contamination by other activities. Contractor will be responsible for disposal of the excavated soil removed from the Center to a permitted landfill. Soil needs to be tested according to testing requirements that the permitted landfill specifies for disposal. The landfill will indicate the test/per cubic yards of soil necessary. Soil that can be reused on-site will be exempt from these requirements.

17. Will on site power and water be available for construction purposes at no charge to the contractor?

**Response:** Yes.

18. What power is available on site for construction purposes? Single phase? 3 phase? 230v? 460v? Available amperage?

**Response:** What power is needed by the contractor? 1297 complex consists of six building that have various power capabilities within the buildings. If you would like to meet we can discuss possibilities for power sources. We have a substation next to 1297 that has 480/277 and 208/120 volt power. Contractor may have to set a temporary power stand and tap into some power from one of the buildings or the substation. This need further planning and site discussion.

19. Please provide a detail and specific information of any vertical and horizontal construction joints in the shotcrete.

**Response:** Provide a lumber bulkhead at the location of the construction joint. The next day, strip off the lumber bulkhead, coat the exposed edge of shotcrete with a concrete bonding agent, and place the new adjacent shotcrete panel.

20. Reference drawing page C-107 detail section A-A. Please provide a detail of what cap (if any) is required on top of the helical anchor and imbedded into the concrete grade beam. We assume one is needed for support of the beam.

**Response:** The top end of the anchor may be capped with a 3/8" thick carbon steel (ASTM A36) plate, tack welded to the anchor shaft.

**Follow up question:** What are the length and width dimensions of the steel plate?

**Response:** Use a 5/8" (not 3/8") plate 7 inches square.

21. Is the contractor responsible for filling the basin with water? Will NASA allow on site water to be used at no cost to the contractor?

**Response:** The basin will be filled by the NASA.

22. Will NASA be responsible for marking the underground utilities in the area of construction not covered by MISS Utility? If not, and the contractor is responsible, will NASA provide as built drawings to help locate?

**Response:** Yes, NASA is responsible for marking the underground utilities.

23. Will a cantilevered whaler work for the sheet pile wall or will the whaler need to be continuous? Please advise and provide a detail for the correct installation method.

**Response:** The whalers are designed to be installed non-continuously in three approximately equal lengths across the width of the basin. A close look at Section 1 on C-104 shows the points of discontinuity at locations about one-third of the way across the basin, each falling midway between two adjacent anchors. No splice detail is required to connect adjacent lengths of whaler to one another. Try to install the whalers so that there is no more than a 1/2" gap between the ends of adjacent whalers.

24. Is there any height restriction or permits for a mobile crane?

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**Response:** There won't be any height restrictions at the site; the gantry is about two hundred feet overhead. The operator must provide certificates of annual and quad load testing and will be required to perform and document a daily inspection.

25. For the sheet pile waler system; will the steel I beams, bent plate, nuts, and the helical piers need to galvanize?

**Response:** No, all of those elements will be covered by the shotcrete so we don't particularly need a coating system. This is a temporary facility with a 3 year service life so long term corrosion protection is not a requirement.

26. Please take a look at the attached sketch. We wanted to know how the TECCO mesh should be installed against the sheet pile. How will the mesh be attached to the sheet pile wall? Please provide details and sections of mesh and shotcrete installation on the sheet pile wall.

**Response:** The mesh and shotcrete should follow the contour of the sheet piling (scenario #1 in the attachment). The mesh should be held to about mid-depth of the shotcrete; how this is done is up to the contractor (chairs welded or screwed to the sheet piling would seem appropriate).

27. It's not uncommon for sheet piling to be designed by the contractor. It appears the sheet pile wall is fully designed for this project. Does the contractor need to provide engineered drawings for the design on the sheet pile?

**Response:** The sheet piling has been designed by a Virginia Professional Engineer. No further engineering on the part of the installation contractor is required.

28. Does the 4x4 wire mesh need to be on chairs? If so, what type and how high?

**Response:** The wire mesh should be held to about mid-depth of the shotcrete; how this is done is up to the contractor.

29. Please provide torque & load requirements for the crane pad anchors, tie back anchors, field anchors

**Response:** The geotechnical engineering calculations assume the following axial loads and anchor lengths for the various helical anchors: Crane pad (37 kips, 10 feet long); Tieback anchors (18 kips per anchor & 10 feet long for the upper row spaced at 9 feet on center and 40 kips per anchor & 10 feet long for the bottom row spaced at 4.5 feet on center); Sloped basin wall anchors (69.3 kips, 10 feet long). Anchor installation torque was not calculated; that is the responsibility of the contractor.

**Follow up question:** Our drawing indicates much longer lengths for the anchors than what is stated above. Please verify the anchor lengths for each area that are to be included for this project.

**Response:** Please ignore previous response. The geotechnical engineering calculations assume the axial loads and anchor lengths for the various helical anchors as tabulated in question #33. Anchor installation torque was not calculated; that is the responsibility of the contractor.

30. Please reference detail #4 on C-103 and detail 2 on C-104.

a. Are the helical anchors intended (in part) to address the potential buoyancy of the basin given the ground water table? If so, how are the soil anchor secured to the 6" shotcrete and 4X4 - W4xW4 WWF?

**Response:** The design assumes full site dewatering prior to excavation, as well as filling of the basin before the dewatering is turned off so that buoyancy of the concrete basin is not a concern.

b. The ECCO steel wire mesh appears to be soundly attached to the helical anchor with the use of a TECCO strike plate. According to the TECCO product literature the mesh is designed for slope stabilization. Is the TECCO steel wire mesh specified for slope protection only or is it incorporated to deal with the concrete buoyancy issue stated above?

**Response:** The soil anchors and TECCO mesh are meant for slope stabilization only, not to resist buoyancy.

31. Can AB Chance helical anchors be used instead of specified Fasteel helical anchors?

**Response:** yes

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32. Can the final design Geotechnical Analyses and Soil reports be provided?

**Response:** Yes

**Note:** New soil boring test have been conducted. See question #34.

33. The specifications do not require pullout or Load tests for the sheet pile or helical anchors. Are any needed? Is so what test and what location?

**Response:** Yes. Helical anchor installed length, design loads and load test requirements are in the following table. A load test specification is provided.

Helical Anchor Position	Installed Length (ft)	Design Load (kip)		Test Type
Sheet Pile Wall Tie-back anchor at Upper Waler	45	18	Tension	None
Sheet Pile Wall Tie-back anchor at Lower Waler	35	40	Tension	None
Sloped Wall Anchors	25	69.3	Tension	None
Basin Floor Anchors	25	69.3	Compression	None
Crane Pad Anchors	60	37.4	Compression	One compression test and one pull-out test

34. There are no soil borings in the anchor zone of the sheet pile tie-backs. This is one of the most critical elements of this design. We recommend 2 borings be performed in this area. Would NASA perform this test or would the contractor?

**Response:** We agree with the recommendation for the additional soil borings and the contractor shall include this in the proposal.

**Note:** Soil boring test have already been conducted, and result s will be provided.

35. A substantial dewatering effort is required to successfully complete this project. The aerial extent of influence from this dewatering effort could have negative consequences for adjacent structures, including the gantry. Has this potential issue been considered and investigated by the engineers of record?

**Response:** The gantry foundation is on deep driven piles and should not be affected by the dewatering activities.

36. We are concerned the near by river will have a negative impact on the project soil conditions and dewatering effort. We recommend installing a test well and record the amount of water displaced. This information will be required in order for us to design and install an adequate dewatering system. Would NASA perform this test or would the contractor?

**Response:** We agree with the test well recommendation and the contractor shall include in his proposal.

**Note:** Dewatering test well have already been conducted, and results will be provided.