Approved Plans
2/2/2015
PDD15-526 / TS

STARKEY RANCH
WELCOME CENTER

Prepared For:
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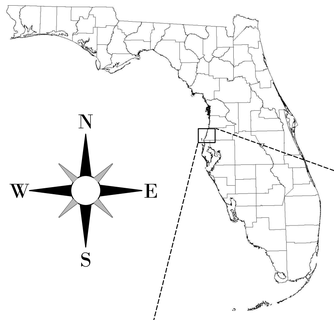
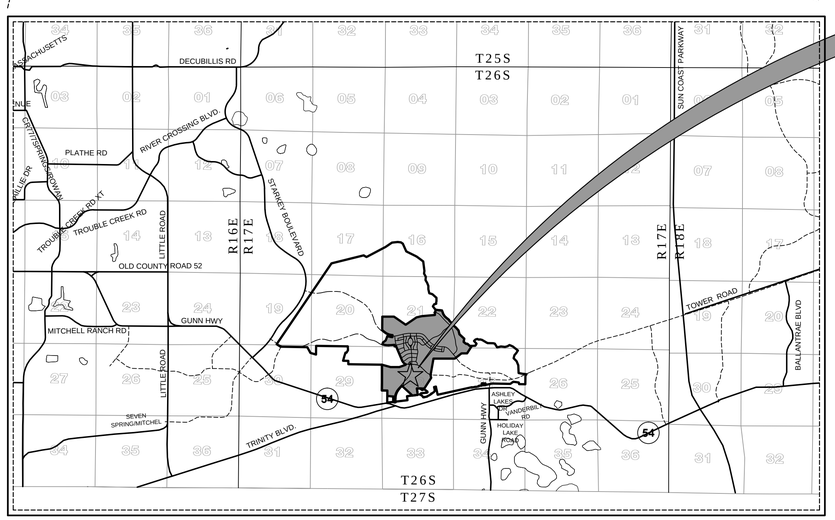
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

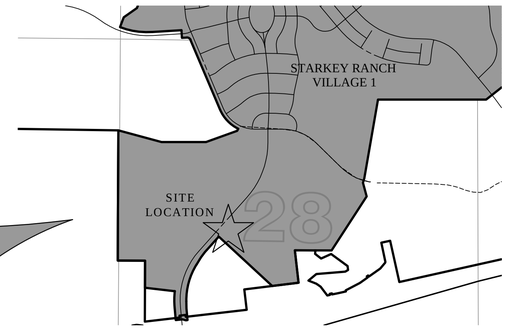
PRELIMINARY CONSTRUCTION SITE PLAN

SECTION 28, TOWNSHIP 26S, RANGE 17 EAST
PASCO COUNTY, FLORIDA





LOCATION MAP
(1" = 1 MILE)



SITE MAP
(NOT TO SCALE)

CALL 48 HOURS BEFORE YOU DIG
Sunshine State One Call 811 OF FLORIDA, INC.
1-800-432-4770

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS, STATE OF FLORIDA IN EFFECT AT THE TIME OF PASCO COUNTY APPROVAL, AND ARE IN COMPLIANCE WITH THE STANDARDS THEREIN EXCEPT AS NOTED ON THE PLANS. ANY DEVIATIONS NOTED ON THE PLANS SUBSTANTIALLY COMPLY WITH THE INTENT OF THE STANDARDS.

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PASCO COUNTY SUBMITTAL DATE:
FEBRUARY 26, 2014

STARKEY RANCH
WELCOME CENTER

WS-TSR, LLC
(WHEELOCK STREET CAPITAL)

6	12/17/2014	FINAL SUBMITTAL
5	11/10/2014	SITE PLAN MODIFICATION
4	07/07/2014	RECLAIMED SERVICE RPZ REMOVAL
3	4/11/2014	UTILITY COMMENTS
2	4/11/2014	COUNTY COMMENTS
1	03/27/2014	UTILITY COMMENT REVISIONS
	02/26/2014	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PLAN REVISIONS

	DATE	DESCRIPTION

PLAN REVISIONS

R:\STARKEY RANCH\WELCOME CENTER\WORKING FILES\CURRENT DRAWINGS\CP\COVER.DWG-C-100 2014/12/16 2:41 PM NATALIE BUDEN

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HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION: NAVD 88 TO NGVD 29 = +0.85

ADDRESS CONTROL NUMBER	
WATER COMMITMENT	PASCO COUNTY
SEWER COMMITMENT	PASCO COUNTY
SWFWMD	
WATER DEP	
SEWER DEP	
TAX PARCEL I.D. NO.	28-26-17-0000-00100-0090

PERMIT / FILE NUMBERS

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE: _____
REGISTRATION NO. 52717

FILE:	COVER
PROJECT NO:	TSR-SR-1018
GRADING & DRAINAGE	
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN
UTILITIES	
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

COVER SHEET

C-100

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. The Site Subcontractor shall be responsible for installation and maintenance of all erosion and turbidity controls and the quality and quantity of offsite or wetland discharges.
2. Prior to construction, the Site Subcontractor is responsible for having his dewatering plan and turbidity control plan approved by the applicable reviewing agencies. Refer to the project's permit approvals and permit conditions for agencies requiring such review and approval. Questions concerning appropriate techniques should be addressed to those agencies and/or discussed with the project engineer and owner.
3. The appropriate turbidity and erosion control methodologies selected by the Site Subcontractor for this project should be made following assessment of the plans and project site specific factors and after consultations as needed with the project engineer and appropriate agencies. The Site Subcontractor will be responsible for obtaining any and all necessary permits for such activity; several factors to consider are listed below:
   - A. Clay content in excavated materials and/or permeabilities rates
   - B. Depth of cut in ponds, trenches, or utility lines
   - C. Ambient ground water levels
   - D. Actual rainfall amounts and time of year relative to normal rainy season
   - E. Proximity to wetlands, water bodies or offsite properties
   - F. 'Class' designation of receiving water bodies (i.e., Outstanding Florida Waters, shellfish harvesting areas, etc.)
   - G. Density, type, and proximity of upland vegetation to be retained during construction (for use as possible filtration areas)
   - H. Fill height relative to natural grade and length and steepness of the proposed slopes
   - I. Existing topography and directions of surface flow
   - J. Type of equipment used
   - K. Project type
   - L. Duration of construction activities
   - M. Separation distance of onsite ponds
   - N. Ambient quality of surface and groundwater
   - O. Temporary stockpile locations and heights
4. At the onset of construction, the Site Subcontractor, as the party responsible for implementation of the erosion and sediment control plan, shall assess the above described conditions and factors with respect to relative cost effectiveness and select the appropriate methods of protection. A fairly extensive list of techniques are presented below but it must be stressed that any or all of the following may be necessary to maintain water quality and quantity standards. The construction sequencing should be thought out in advance of initiation to provide adequate protection of water quality.
5. Discharges which exceed 29 N.T.U.'s over the background levels are in violation of state water quality standards. Discharges of water quantities which affect offsite properties or may damage wetlands are also prohibited by regulating agencies.
6. The erosion and turbidity control measures shown hereon are the minimum required for agency approval. Additional control and measures may be required due to the Site Subcontractor's construction sequence & unforeseen weather conditions. Any additional measures deemed necessary by the Site Subcontractor shall be included in the lump sum bid with no extras for materials and labor allowed.
7. Hay bales or silt screens shall be installed prior to land clearing to protect water quality and to identify areas to be protected from clearing activities and maintained for the duration of the project until all soil is stabilized.
8. Floating turbidity barriers shall be in place in flowing systems or in open water lake edges prior to initiation of earthwork and maintained for the duration of the project until all soil is stabilized.
9. No clay material shall be left exposed in any stormwater storage facility. If clay or sandy-clays are encountered during stormwater storage excavation, the Site Subcontractor shall notify the Engineer immediately before proceeding with further excavation. If the Engineer of Record has determined that such soils are non-confining and must be excavated to meet permit and design conditions, excavation may proceed after obtaining written authorization from the appropriate governing agency. If said soils are left exposed at the permitted and designed depth, the Site Subcontractor shall over-excavate the pond's bottom and side slopes by a minimum of twelve (12") inches and backfill with clean sands to help prevent suspension of fine particles in the water column.
10. The installation of temporary erosion control barriers shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the construction phase.
11. The type of erosion control barriers used shall be governed by the nature of the construction operation and soil type that will be exposed. Silty and clayey material may require solid sediment barriers to prevent turbid water discharge, while sandy material may need only silt screens or hay bales to prevent erosion. Floating turbidity curtains should generally be used in open water situations. Diversion ditches or swales may be required to prevent turbid stormwater runoff from being discharged to wetlands or other water bodies. It may be necessary to employ a combination of barriers, ditches, and other erosion/turbidity control measures if conditions warrant.
12. Where pumps are to be used to remove turbid waters from construction areas, the water shall be treated prior to discharge to the wetlands. Treatment methods include, for example, turbid water being pumped into grassed swales or appropriate upland vegetated areas (other than upland preservation areas and wetland buffers), sediment basins, or confined by an appropriate enclosure such as turbidity barriers or low berms, and kept confined until turbidity levels meet State Water Quality Standards.
13. The Permittee shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operation, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable. Clearing and grubbing shall be so scheduled and performed such that grading operations can follow immediately thereafter. Grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.
14. Water derived from various dewatering methods should be passed through sufficiently wide areas of existing upland vegetation to filter out excess turbidity. If this is not sufficient, the water shall be retained in previously constructed permanent stormwater ponds or else retained in temporary sedimentation basins until the clarity is suitable to allow for its discharge. Plugging the outfalls from completed stormwater ponds may be needed to avoid discharge. However, such situations should be monitored closely to preclude berm failure if water levels rise too high.
15. Water can be transported around the site by the use of internal swales or by pumps and pipes.
16. Sheet flow of newly filled or scraped areas may be controlled or contained by the use of brush barriers, diversion swales, interceptor ditches or low berms. Flow should be directed toward areas where sediments can sufficiently settle out.
17. Exposed soils shall be stabilized as soon as possible, especially slopes leading to wetlands. Stabilization methods include solid sod, seeding and mulching or hydromulching to provide a temporary or permanent grass cover mulch blankets, filter fabrics, etc., can be employed to provide vegetative cover.
18. Energy dissipaters (such as rip rap, a gravel bed, hay bales, etc.) shall be installed at the discharge point of pipes or swales if scouring is observed.
19. Attempt to install roadway curb and gutters as soon as possible to reduce the surface area for erosion to occur.
20. Implement storm drain inlet protection (hay bales or gravel) to limit sedimentation within the stormwater system. Perform inspections and periodic cleaning of sediments which wash out into the streets until all soil is stabilized.
21. Water discharge velocities from impounded areas and temporary sedimentation basins shall be restricted to avoid scouring in receiving areas.
22. If water clarity does not reduce to state standards rapidly enough in holding ponds, it may be possible to use chemical agents such as alum to flocculate or coagulate the sediment particles.
23. Hay bales, silt screens, or gravel beds can be added around the pipe or swale discharge points to help clarify discharges. Spreader swales may help dissipate cloudy water prior to contact with wetlands.
24. All fuel storage areas or other hazardous storage areas shall conform to accepted state or federal criteria for such containment areas.
25. Vehicle or equipment washdown areas will be sufficiently removed from wetlands or offsite areas.
26. Fugitive dust controls (primarily by using water spray trucks) shall be employed as needed to control windborn emissions.
27. If the above controls remain ineffective in precluding release of turbid water, especially during pond or utility line dewatering, then the contractor may be compelled to use a vertical dewatering system such as well points or sock drains to withdraw groundwater which may already be clear enough to allow for direct discharge to wetlands.
28. Ongoing inspections and periodic maintenance by the Site Subcontractor shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. Site Subcontractors are encouraged to obtain and thoroughly review The Florida Development Manual: A Guide to Sound Land and Water Management, which was developed by the State of Florida Department of Environmental Protection in 1988. This provides fairly in-depth discussions of recommended techniques and also provides specific design and technical standards. A copy of this document is available for review at Heidt Design, LLC.
29. The contractor will perform daily inspections of all on-site wetlands within the construction area to ensure that water levels within those wetlands are not excessively impounded prior to the time when the permitted control structure or outfall is built. Water levels significantly above normal should be corrected at a frequency that prevents a change in the vegetative character or health of any wetlands.

30. All retention areas shall be sodded to the seasonal high waterline.

STREET & DRAINAGE CONSTRUCTION NOTES:

1. Prior to construction, the Contractor shall obtain from the Engineer or Owner a copy of all pertinent permits related to this project. It is the Contractor's responsibility to assure that all construction activities are in compliance with the conditions of all permits and approvals. Contractor is also responsible for having his dewatering plan approved by SWFWMD.
2. All construction, materials and workmanship are to be in accordance with Pasco County Land Development Code and DOT Specifications, latest editions.
3. Grass and mulch, or solid sod, all areas in existing rights-of-way disturbed by construction. In the proposed rights-of-way a 16" wide area behind the back of curb shall be solid sodded. The remainder of the proposed rights-of-way to be seeded and mulched if the slope is greater than 6:1.
4. In accordance with the Underground Facility Damage Prevention and Safety Act (Chapter 556, F.S.) the Contractor shall call the Sunshine State One Call of Florida (SSCOF) at 1-800-432-4770 forty eight (48) hours in advance of any excavation.
5. (For Miami, Valley, Type "V", etc. Gutter Type Sections Only) Prior to curb inlet construction, the Engineer shall lay out the back of the curb in the vicinity of the respective inlet for alignment and grade, and the Contractor shall construct the inlet allowing for an 18" concrete throat between the back of the curb and the face of the inlet. The top of the inlet shall be constructed to an elevation of 3/8" above the top of curb. Any inlets constructed incorrectly by deviating from this sequence of inlet construction shall be the sole responsibility of the Contractor and no additional payment shall be made or allowed for removing and/or correcting the inlet.
6. Suitable fill obtained through excavation of streets and detention ponds shall be placed on lots and adjacent land in accordance with the Master Drainage and Grading Plan as directed by the Engineer.
7. Sod/Seed & Mulch shall be placed in accordance with applicable City/County standards as well as in accordance with standard and specific conditions in the SWFWMD permit, if applicable. At a minimum this shall include sodding of all pond embankments of a slope 4:1 or greater to the NW line, as well as seeding and mulching of the balance of the pond tracts (including pond berms, excluding the area below NW), sodding at a minimum of 16" from the back of curb, and seeding and mulching of any project area with a slope of 4:1 or steeper.
8. Roadway underdrain has been located on these plans to ensure adequate base protection.
9. Site clearing shall be performed per the approved construction plans and in accordance with Pasco County Land Development Code. Installation and maintenance of the required barricading and erosion control shall be the responsibility of the site development contractor unless otherwise designated.
10. Prior to beginning construction, Contractor shall expose all existing utility inverts to which a tie-in is proposed and have Engineer verify the elevation and adequacy of these inverts.
11. All subsurface construction shall comply with the "Trench Safety Act". The Contractor shall ensure that the method of trench protection and construction is in compliance with the Occupational Safety and Health Administration (OSHA) regulations.
12. Siltation accumulations greater than the lesser of 12 inches or one-half the depth of the siltation barrier shall be immediately removed and placed in upland areas.
13. During land alteration and construction activities, it shall be unlawful to remove vegetation by grubbing or to place soil deposits, debris, solvents, construction material, machinery or other equipment of any kind within the dripline of a tree to remain on the site unless otherwise approved by the County.
14. All erosion control installation and installation coordination shall be the responsibility of the Contractor. Heidt Design, if contracted by the Owner, will coordinate the staking of the alignment of the proposed erosion control and shall limit its responsibility and coordination at that point. Be advised that the construction approval and maintenance of the erosion control shall be the sole responsibility of the Site Contractor.

WETLANDS NOTE:

There are no wetlands on the subject site.

"Conservation Area" designation is given to all protected wetlands per Pasco County requirements. They are not designated as "Conservation Easements" for SWFWMD compensation.

EARTHWORK NOTE:

Note that all fill dirt required for this project has already been placed from excess materials excavated from ponds within Starkey Ranch. No net excavation or backfill is required, except for de minimus quantities that might be required or generated from fine grading activities. Any excesses will be maintained within the Starkey Ranch project.

Earthwork Calculation: CUT = 0 CY
FILL = 0 CY
NET = 0 CY

SPECIAL NOTE:

The project area is covered by the existing SWFWMD ERP permit for Starkey Ranch Heart Pine Avenue (Application no. 691868) and by the Pasco County approval for mass grading included in the Village 1 mass grading plan approval (RSD14-001). Clearing, grubbing and grading has been initiated under these authorizations. Gopher tortoise relocation in accordance with the FFWCC permit covering this project area has been completed.

SOIL REUSE REQUIREMENTS

At least the following six (6) types of materials are present on-site that require proper handling/treatment by the Contractor, during the course of site development/construction activities, in accordance with the noted reuse requirements for each type. Although some soil material quality control testing will be randomly and periodically performed by the project Geotechnical Consultant, as required, working for the Owner, it is the Contractors sole responsibility to reuse onsite soil materials as described and specified below. All discovered or future filling or material reuse work onsite not in accordance or compliance with these notes, or any future adverse impacts or consequences resulting from the Contractors failure to properly reuse soil materials onsite as specifically described below, will be the Contractors sole responsibility for remedy and repair at his cost. If the Contractor has any questions regarding any of the soil materials onsite, the project Geotechnical reports (which he needs to obtain from the Owner or Geotechnical Consultant/ Engineer), or any questions associated with the notes below, it is presumed that the Contractor will satisfactorily resolve such questions/concerns prior to site demolition, clearing, grubbing, stripping and excavation operations begin.

Please note, local, state and federal rules, laws, and regulations prohibiting soil reuse as described below shall take precedence and shall be followed to the fullest extent.

1. Site Demolition Debris (Site demolition debris, not generally considered an environmental/contamination hazard, includes such items as wood pieces, concrete pieces, plastic pipe pieces, certain metal/steel pieces, or similar. If any such debris or other demolition debris is considered an environmental/contamination hazard, or if burial onsite of such materials is prohibited by the governing environmental agency, then all such materials shall be hauled off site by the Contractor for proper disposal, in accordance with all applicable governing environmental agency requirements. In no case, shall any such debris materials remain, or be placed by the Contractor, beneath any type of structure, pavement, roadway, house, building,pipeline, slab, etc.)

All Site Demolition Debris shall be removed from the site development and disposed of properly in accordance with all applicable governing environmental agency requirements.

2. Clearing and Grubbing Debris (Site clearing and grubbing debris includes all larger organic materials, such items as trees, stumps, limbs, brush, vegetation, or similar; all such materials must be either "burned" or "mulched" by the Contractor prior to reuse or disposal onsite.)

If acceptable to the governing environmental agency, then all such "burned" or "mulched" site clearing/grubbing debris, if approved in writing first by the Owner/Geotechnical Consultant/ Engineer, could be:

a). placed as "mulch" material surface dressing in future landscape areas, stockpiling of such"mulched" materials (amounts/locations), if acceptable, will be directed by the Owner/Geotechnical Consultant//Landscape Architect/Engineer;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such debris could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require adequate soil mixing (mix soil with the mulch) and then refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond, but will require adequate soil cover;

d). placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, but will require adequate soil cover.

In all instances, the minimum pond depth (including floodplain and wetland mitigation areas) shall be no less than required by the Engineer.

All organic debris burial areas in stormwater pond areas and floodplain mitigation pond areas will require adequate soil cover of 18 - 24 inches (with compaction) by the Contractor, meaning at least an adequate weight/thickness of soil material overtop the buried organic debris, such that there will be no future floating up of debris; and for all organic debris burial areas in littoral shelf areas, wetland mitigation pond areas, and passive recreation/park areas, adequate soil/mulch mixing (with compaction) will be necessary by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, or park/grassed area will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, or passive recreation/park areas they propose to use for this type of organic debris disposal, and what approximate elevations will be the top and bottom of the organic debris.

3. Muck/Peat Organic Materials (Typically generated from wetland or lowland areas, or similar areas, permitted for impact or displacement, including excavation of unsuitable organic materials and refilling with suitable sandy soils to accommodate development; includes significant organic peat materials, organic sandy muck materials, and mucky or organic sand materials, designated either Pt or A-8, per the Unified and AASHTO Soil Classification Systems, respectively; those organic materials whose presence, or placement by the Contractor, is unacceptable beneath any type of structure, pavement, roadway, house, building, pipeline, slab, etc.)

If acceptable to the governing environmental agency, then all such muck/peat (significant) organic materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer,could be:

a). placed as "peat/muck/organic matter" surface layer in new or created wetland mitigation areas, stockpiling of such "significant organic" materials (amounts/locations), if acceptable, will be directed by the Owner/Wetland Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such organic materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require adequate soil mixing (mix soil with the organic materials) and then refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond, but will require adequate soil cover;

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, but will require adequate soil cover.

All organic debris burial areas in stormwater pond areas and floodplain mitigation pond areas will require adequate soil cover (with compaction) by the Contractor, meaning at least an adequate weight/thickness of soil material overtop the buried organic debris, such that there will be no future floating up of debris; and for all organic debris burial areas in littoral shelf areas, wetland mitigation pond areas, and passive recreation/park areas, adequate soil/organics mixing (with compaction) will be necessary by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, or park/grassed area will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, or passive recreation/park/landscape berm areas they propose to use for this type of organic material disposal, and what approximate elevations will be the top and bottom of the organic materials.

4. Topsoils/Site Strippings (Typically generated from upland areas, after demolition/clearing/grubbing/discing operations; stripping of surficial organics/topsoils being a requirement over at least all structure, building, concrete slab and pavement areas prior to filling to accommodate development; includes topsoils and organic laden sands; those topsoils/organic sand materials whose presence, or placement by the Contractor, is unacceptable beneath any type of structure, pavement, roadway, house, building, pipeline, slab, etc.)

If acceptable to the governing environmental agency, all such topsoils/organic laden sand materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer, could be:

a). placed as fill in new (larger) landscape/grass common areas or landscape berm areas (with compaction), stockpiling of such "topsoils/organic laden sand materials" (amounts/locations), if acceptable, will be directed by the Owner/Landscape Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such topsoils/organic laden sand materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond;

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth.

All topsoil/organic laden sand disposal areas in littoral shelf areas, wetland mitigation pond areas, passive recreation/park areas, or landscape/berm areas will require adequate compaction by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, park/grassed area, or landscape berm will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, passive recreation/park areas, or landscape berm areas they propose to use for this type of organic debris disposal, and what approximate elevations will be the top and bottom of the organic debris.

5.) Non-Structural Clayey Sand/Clay Materials (Typically generated from pond/lake excavations or from utility pipeline/manhole excavations; such clayey sand/clay materials, with typically 40% fines or more passing the No. 200 sieve, designated either SC, CL, CH or A-4 to A-7, per the Unified and AASHTO Soil Classification Systems, respectively; such clayey sand/clay materials being unsuitable or unacceptable for reuse by the Contractor as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill.)

If acceptable to the governing environmental agency, all such clayey sand/clay materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer, could be:

a). placed as fill in new (larger) landscape/grass common areas or landscape berm areas (with compaction), provide some surface drainage relief, use where infiltration and drainage is not an important issue, provide some surface sandy soils (min. of 18-inches) as directed by the Landscape Consultant for planting; stockpiling of such "clayey sand/clay materials" (amounts/locations), if acceptable, will be directed by the Owner/Landscape Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such clayey sand/clay materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require refilling (with compaction) to required design grades, and the top 2 feet (min.) being sand materials (not clayey materials) for turbidity control and planting;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond; however, a 12-inch layer (min.) of sand material overtop the clayey materials will be necessary for turbidity control.

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, however, a 12-inch layer (min.) of sand material overtop the clayey materials will be necessary for turbidity control.

All clayey sand/clay disposal areas in littoral shelf areas, wetland mitigation pond areas, passive recreation/park areas, or landscape/berm areas will require adequate compaction by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, park/grassed area, or landscape berm will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, passive recreation/park areas, or landscape berm areas they propose to use for this type of clayey sand/clay disposal, and what approximate elevations will be the top and bottom of the clayey materials.

6.) Structural Sand Fill Materials (Typically generated from pond/lake excavations, cut from higher elevation areas, or from utility pipeline/manhole excavations; such sand materials, with typically 35% fines or less passing the No. 200 sieve, designated either SP, SP-SM, SM or A-2-4, A-2-6 or A-3, per the Unified and AASHTO Soil Classification Systems, respectively; such sand materials being suitable or acceptable for reuse by the Contractor as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill.)

All such sand materials shall be reused onsite by the Contractor, per the Geotechnical reports, as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill; placed by the Contractor in loose lifts not exceeding 12-inches, compacted to at least 95% or 98% modified Proctor (per ASTM D-1557 or AASHTO T-180), whichever is applicable depending upon the future use of the filled area (see Geotechnical reports); with density testing of each fill lift for acceptance by the Geotechnical Consultant, upon Contractor request, prior to the next fill lift being placed.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
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Office: 813-253-5311
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www.HeidtDesign.com

STARKEY RANCH
WELCOME CENTER

GENERAL NOTES

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	GNOTES
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:______________
REGISTRATION NO. 52717

C-101

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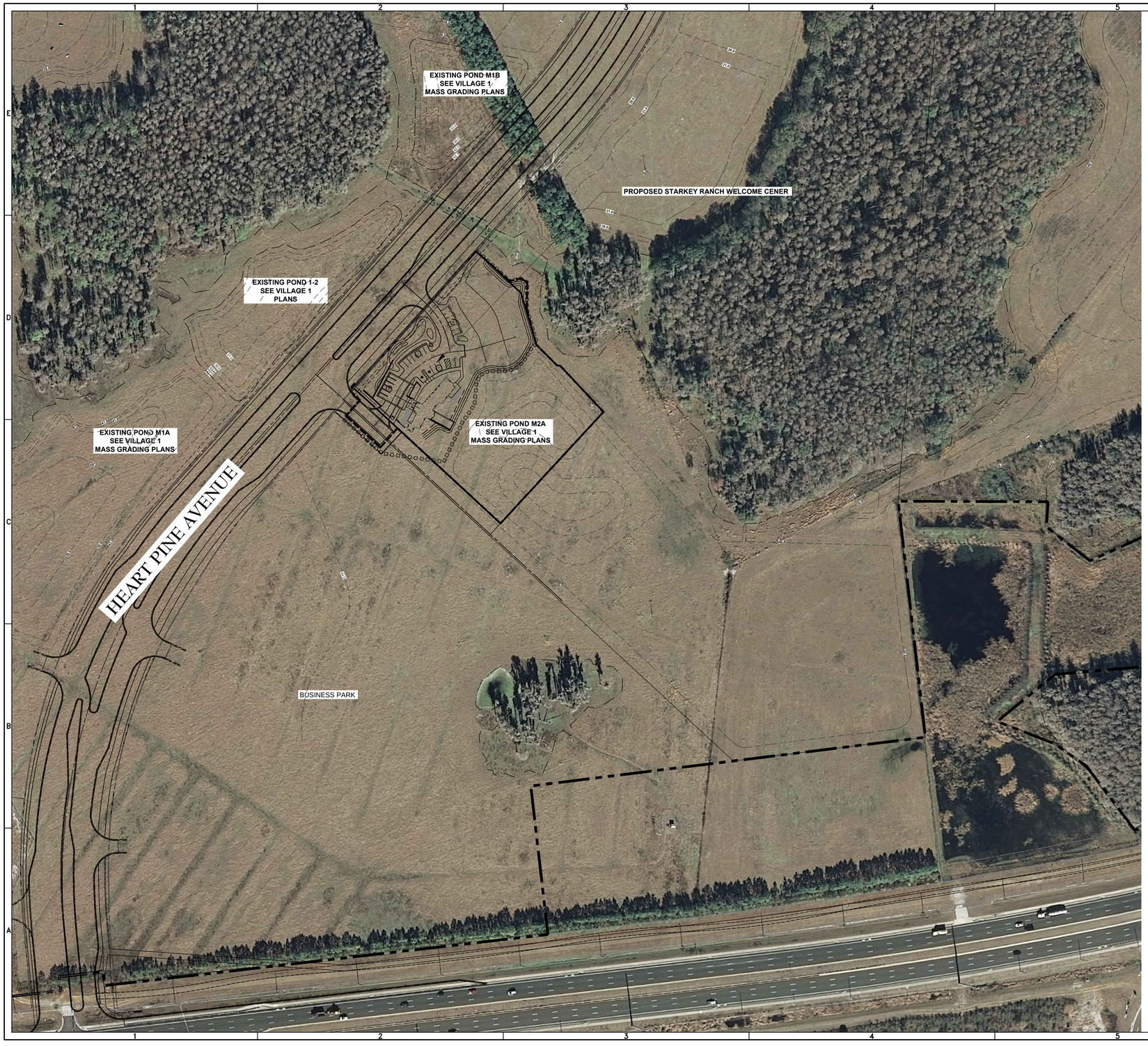

N

0 100 200

GRAPHIC SCALE: 1" = 100'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

NOTE:
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DATE OF PHOTO: 2011

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STARKEY RANCH
WELCOME CENTER

AERIAL SITE PLAN

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	ASP
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-103

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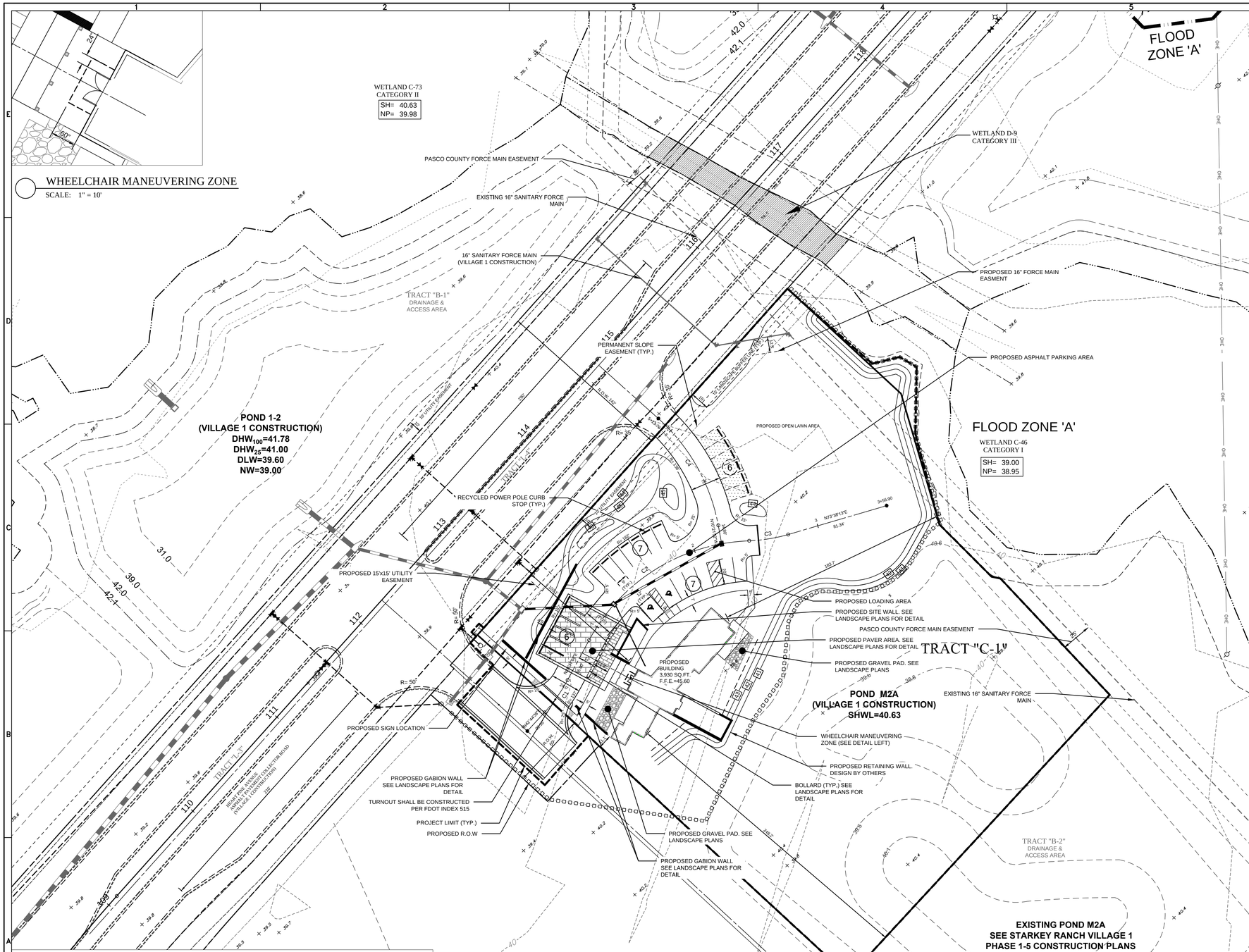

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

GENERAL LEGEND

- FLOATING TURBIDITY BARRIER
- STAKED EROSION CONTROL
- LANDSCAPE BUFFER LINE
- PROJECT LIMIT LINE
- RIGHT-OF-WAY LINE
- UTILITY EASEMENT
- FEMA FLOOD ZONE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
- PROPOSED PAVER AREA
- PROPOSED GRASS PARKING AREA

PHASING NOTES:

1) THE STARKEY RANCH WELCOME CENTER WILL BE CONSTRUCTED IN A SINGLE PHASE.
2) THE STARKEY RANCH WELCOME CENTER RELIES UPON HEART PINE AVENUE FOR ACCESS AND UPON POND 1-2 FOR STORMWATER MANAGEMENT.
3) THE STARKEY RANCH WELCOME CENTER WILL BE CONSTRUCTED CONCURRENTLY WITH OR SUBSEQUENT TO HEART PINE AND POND 1-2.

Curve Table: Alignments

Curve #	PI Station	Radius	Length	Delta	Degree	Chord Direction	Chord Length	PC Station	PT Station
C1	0+36.02	125.000	31.543	014.4583	047.1564	N35° 30' 53.03"E	31.460	0+20.16	0+51.71
C2	1+73.88	150.000	156.431	059.7521	038.9424	N58° 09' 41.83"E	149.438	0+87.71	2+44.14
C3	2+59.93	125.000	31.418	014.4008	047.1564	N80° 50' 14.31"E	31.335	2+44.14	2+75.56
C4	4+66.17	150.000	98.989	037.8111	038.9424	N29° 16' 12.02"W	97.203	4+14.80	5+13.79

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STARKEY RANCH WELCOME CENTER

PRELIMINARY SITE PLAN

WS-TSR, LLC

DATE	DESCRIPTION
	PREPARED FOR:

DATE	DESCRIPTION
12/17/2014	SITE PLAN MODIFICATION
4/11/2014	COUNTY COMMENTS
02/26/2014	REVIEW SUBMITTAL

PROJECT NO: TSR-SR-1018
FILE: PSP
DESIGN BY: BUDEN
DRAWN BY: BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-104

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PARKING CALCULATIONS

PROPOSED USE	SIZE (SQ.FT)	REQUIRED PARKING / UNIT	PARKING SPACES REQUIRED
WELCOME CENTER	3,930	1 SPACE / 200 SQ. FT.	20
TOTAL PARKING PROVIDED			26; 20 PAVED SPACES 6 GRASS OVERFLOW SPACES

SITE DATA TABLE

ITEM	DESCRIPTION OF USE	ACERAGE
TRACT C-1	PROJECT AREA: WELCOME CENTER, PARKING, ETC.	3.09
OFFSITE PORTION	SHARED DRIVEWAY, ETC.	0.15
SITE TOTAL:		3.24

BUILDING INFORMATION

ITEM DESCRIPTION	VALUE
MAX. BUILDING HEIGHT	26 FT
NUMBER OF FLOORS	1.00
INTENDED USES	WELCOME CENTER
BUILDING SIZE	3,930 S.F.

Non-Residential Lot Standards

Product Type	Minimum Lot Width	Minimum Lot Depth	Minimum Side Setback (Structure to Structure)	Minimum Side Setback (Structure to Parking)	Minimum Side Setback (Structure to Public R/W)	Minimum Front Setback (Structure to Parking)	Minimum Front Setback (Structure to Public R/W)	Minimum Rear Setback (Structure to Parking)	Minimum Rear Setback (Structure to Public R/W)	Maximum Lot Coverage	Maximum Building Height
Non-Residential (1)	zero	zero	5 feet	5 feet	zero	5 feet	zero	5 feet	zero	100%	65 feet

Notes : (1) Non-Residential shall apply to all structures, including mixed use structures, that serve other than a strictly residential uses.

PROJECT AREA CALCULATIONS

	AREA (AC.)	PERCENTAGE OF TOTAL PROJECT AREA
IMPERVIOUS SURFACES (EXCLUDING BUILDING)	0.43	13.27
BUILDING	0.09	2.78
OPEN WATER	1.36	41.84
WETLAND	0.00	0.00
GREEN SPACE	1.36	41.98
TOTAL PROJECT AREA:	3.24	100.00

NON-RESIDENTIAL INTENSITY CALCULATIONS (TRACT C-1)

ITEM NO.	ITEM DESCRIPTION	VALUE
1	NON-RESIDENTIAL AREA (ACRES)	3.10
2	WETLAND AREA (ACRES)	0.00
3	SURFACE WATER BODIES (ACRES)	1.30
4	DEVELOPABLE (UPLAND) LAND AREA (Acres) (Item 2+Item 3 - Item 1)	1.80
5	INTENSITY CREDIT (10%)	0.00
6	INTENSITY CREDIT AREA (Acres) (Item 5 X Item 4)	0.00
7	"DEVELOPABLE AREA, INCLUDING CREDITS (Acres) (Item 4 + Item 6)"	1.80
8	PROPOSED BUILDING GROSS FLOOR AREA (SQ. FT.)	3,930
9	PROPOSED ACTUAL F.A.R. (Item 8 ÷ (Item 7 X 43560))	0.050

SUMMARY OF INDIVIDUAL PASCO COUNTY PLAN APPROVALS AND PENDING APPROVALS

INCREMENT / PARCEL I.D.	GROSS AREA (ACRES)	UNIT TYPE	LOT DIMENSION	NO. UNITS	NOTES:
STARKEY RANCH MPUD REZONING PETITION	N/A	N/A	N/A	N/A	APPROVED; RZ-7027 09/11/12
STARKEY RANCH MPUD SUBSTANTIAL MODIFICATION	N/A	N/A	N/A	N/A	APPROVED; RZ-7078 12/17/2013
STARKEY RANCH MASS GRADING	N/A	N/A	N/A	N/A	APPROVED; RSD14-001 1/16/2014
STARKEY RANCH VILLAGE 1 PHASES 1-5	497.70	VARIES	VARIES	473	UNDER REVIEW; RSD14-008
STARKEY RANCH VILLAGE 1 ROADS	N/A	N/A	N/A	N/A	UNDER REVIEW; LRG14-010
STARKEY RANCH WELCOME CENTER	N/A	N/A	N/A	N/A	UNDER REVIEW

STARKEY RANCH
WELCOME CENTER

DESCRIPTION: A PARCEL OF LAND LYING IN SECTION 28, TOWNSHIP 26 SOUTH, RANGE 17 EAST, PASCO COUNTY, FLORIDA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 21, TOWNSHIP 26 SOUTH, RANGE 17 EAST; THENCE ALONG THE WEST BOUNDARY OF THE SOUTHWEST 1/4 OF SAID SECTION 21, N.00°30'39"E., 86.29 FEET TO A POINT ON A CURVE; THENCE SOUTHEASTERLY, 507.13 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 1,232.00 FEET AND A CENTRAL ANGLE OF 23°35'04" (CHORD BEARING S.81°47'42"E., 503.55 FEET) TO A POINT OF TANGENCY; THENCE N.86°24'45"E., 257.28 FEET; THENCE S.51°49'48"E., 15.02 FEET; THENCE N.86°24'45"E., 223.60 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 73.98 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 70°38'28" (CHORD BEARING S.58°16'01"E., 69.38 FEET) TO A POINT OF TANGENCY; THENCE S.22°56'47"E., 1101.54 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 506.02 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 555.00 FEET AND A CENTRAL ANGLE OF 52°14'21" (CHORD BEARING S.49°03'57"E., 488.67 FEET); THENCE S.63°34'31"E., 49.36 FEET TO A POINT ON A CURVE; THENCE SOUTHEASTERLY, 94.00 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 567.00 FEET AND A CENTRAL ANGLE OF 09°29'56" (CHORD BEARING S.84°49'37"E., 93.89 FEET) TO A POINT OF REVERSE CURVATURE; THENCE SOUTHEASTERLY, 55.36 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET AND A CENTRAL ANGLE OF 31°43'07" (CHORD BEARING S.73°43'02"E., 54.66 FEET) TO A POINT OF TANGENCY; THENCE S.57°51'29"E., 38.19 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 80.78 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 80.00 FEET AND A CENTRAL ANGLE OF 57°51'29" (CHORD BEARING S.28°55'44"E., 77.40 FEET) TO A POINT OF TANGENCY; THENCE SOUTH, 29.10 FEET; THENCE EAST, 142.00 FEET TO A POINT ON A CURVE; THENCE SOUTHWESTERLY, 927.80 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 1,271.00 FEET AND A CENTRAL ANGLE OF 41°49'28" (CHORD BEARING S.20°54'44"W., 907.33 FEET) TO A POINT OF TANGENCY; THENCE S.41°49'28"W., 301.39 FEET TO THE **POINT OF BEGINNING;** THENCE S.47°15'22"E., 122.70 FEET; THENCE S.16°21'47"E., 108.18 FEET; THENCE S.44°58'28"E., 58.48 FEET; THENCE S.78°23'16"E., 7.19 FEET; THENCE S.43°11'19"E., 126.59 FEET; THENCE S.42°44'12"W., 306.62 FEET; THENCE N.47°15'22"W., 350.78 FEET; THENCE N.48°10'32"W., 24.74 FEET TO A POINT OF CURVATURE; THENCE NORTHWESTERLY, 39.27 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 25.00 FEET AND A CENTRAL ANGLE OF 90°00'00" (CHORD BEARING N.03°10'32"W., 35.36 FEET) TO A POINT OF TANGENCY; THENCE N.41°49'28"E., 343.59 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 3.090 ACRES (134,614 SQUARE FEET), MORE OR LESS.

STARKEY RANCH
WELCOME CENTER ACCESS EASEMENT

DESCRIPTION: A PARCEL OF LAND LYING IN SECTION 28, TOWNSHIP 26 SOUTH, RANGE 17 EAST, PASCO COUNTY, FLORIDA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 21, TOWNSHIP 26 SOUTH, RANGE 17 EAST; THENCE ALONG THE WEST BOUNDARY OF THE SOUTHWEST 1/4 OF SAID SECTION 21, N.00°30'39"E., 86.29 FEET TO A POINT ON A CURVE; THENCE SOUTHEASTERLY, 507.13 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 1,232.00 FEET AND A CENTRAL ANGLE OF 23°35'04" (CHORD BEARING S.81°47'42"E., 503.55 FEET) TO A POINT OF TANGENCY; THENCE N.86°24'45"E., 257.28 FEET; THENCE S.51°49'48"E., 15.02 FEET; THENCE N.86°24'45"E., 223.60 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 73.98 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 70°38'28" (CHORD BEARING S.58°16'01"E., 69.38 FEET) TO A POINT OF TANGENCY; THENCE S.22°56'47"E., 1101.54 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 506.02 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 555.00 FEET AND A CENTRAL ANGLE OF 52°14'21" (CHORD BEARING S.49°03'57"E., 488.67 FEET); THENCE S.63°34'31"E., 49.36 FEET TO A POINT ON A CURVE; THENCE SOUTHEASTERLY, 94.00 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 567.00 FEET AND A CENTRAL ANGLE OF 09°29'56" (CHORD BEARING S.84°49'37"E., 93.89 FEET) TO A POINT OF REVERSE CURVATURE; THENCE SOUTHEASTERLY, 55.36 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET AND A CENTRAL ANGLE OF 31°43'07" (CHORD BEARING S.73°43'02"E., 54.66 FEET) TO A POINT OF TANGENCY; THENCE S.57°51'29"E., 38.19 FEET TO A POINT OF CURVATURE; THENCE SOUTHEASTERLY, 80.78 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 80.00 FEET AND A CENTRAL ANGLE OF 57°51'29" (CHORD BEARING S.28°55'44"E., 77.40 FEET) TO A POINT OF TANGENCY; THENCE SOUTH, 29.10 FEET; THENCE EAST, 142.00 FEET TO A POINT ON A CURVE; THENCE SOUTHWESTERLY, 927.80 FEET ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 1,271.00 FEET AND A CENTRAL ANGLE OF 41°49'28" (CHORD BEARING S.20°54'44"W., 907.33 FEET) TO A POINT OF TANGENCY; THENCE S.41°49'28"W., 644.99 FEET TO A POINT OF CURVATURE, SAID POINT ALSO BEING THE **POINT OF BEGINNING;** THENCE SOUTHEASTERLY, 39.27 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 25.00 FEET AND A CENTRAL ANGLE OF 90°00'00" (CHORD BEARING S.03°10'32"E., 35.36 FEET) TO A POINT OF TANGENCY; THENCE S.48°10'32"E., 24.74 FEET; THENCE S.47°15'22"E., 66.43 FEET; THENCE S.42°44'38"W., 60.00 FEET; THENCE N.47°15'22"W., 65.95 FEET; THENCE N.48°10'32"W., 20.26 FEET TO A POINT OF CURVATURE; THENCE SOUTHWESTERLY, 39.27 FEET ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 25.00 FEET AND A CENTRAL ANGLE OF 90°00'00" (CHORD BEARING S.86°49'28"W., 35.36 FEET) TO A POINT OF CUSP; THENCE N.41°49'28"E., 52.73 FEET; THENCE N.48°10'32"W., 4.00 FEET; THENCE N.41°49'28"E., 57.27 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 0.163 ACRES (7,099 SQUARE FEET), MORE OR LESS.

NOTES:

1) DEVELOPER/OWNER:
WS-TSR, LLC
(WHEELOCK STREET CAPITAL)
521 13th STREET
SAINT CLOUD, FL 34769
(312) 805-4830
2) ENGINEER: HEIDT DESIGN, INC.
5806-B BRECKENRIDGE PARKWAY
TAMPA, FLORIDA 33610
(813) 253-5311
3) SURVEYOR: GEOPOINT SURVEYING, INC.
1403 EAST 5TH AVENUE
TAMPA, FL 33605
(813) 248-8888
4) EXISTING ZONING: MPUD; EXISTING USE: VACANT/AGRICULTURAL
5) FUTURE LAND USE CLASSIFICATION: PD
6) BUILDING SETBACKS FOR SITE: SEE STARKEY RANCH NON-RESIDENTIAL LOT STANDARDS TABLE THIS SHEET.
7) THE ORIGINAL MPUD PLAN WAS APPROVED ON 9/11/12 (REZONING 7027) THE MPUD. REVISED MPUD APPROVED 12/17/13 (REZONING 7078).
8) WATER SERVICE TO BE PROVIDED BY PASCO COUNTY UTILITIES.
9) SEWAGE DISPOSAL SERVICE TO BE PROVIDED BY PASCO COUNTY UTILITIES.
10) ELECTRICAL POWER TO BE PROVIDED BY DUKE ENERGY.
11) TELEPHONE SERVICE TO BE PROVIDED BY VERIZON.
12) STREET LIGHTING TO BE PROVIDED BY CDD.
13) FIRE PROTECTION TO BE PROVIDED BY THE EXISTING PASCO COUNTY FIRE STATION #15. LOCATED APPROXIMATELY ONE (1.25) MILE FROM SITE. FIRE HYDRANTS TO BE PROVIDED ON SITE.
14) THE SITE CONSISTS OF ACTIVELY GRAZED BAHIA PASTURE.
15) PREDOMINANT SOIL TYPES ON-SITE CONSIST OF SELLERS, SMYRNA,IMMOKALEE, & MYAKKA.
16) SUBJECT SITE WILL BE OWNED AND MAINTAINED BY THE CDD.
17) DETENTION PONDS TO BE WITHIN DRAINAGE EASEMENTS DEDICATED TO THE CDD FOR MAINTENANCE.
18) CONTOURS SHOWN ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. TO CONVERT FROM NAVD 1988 TO NGVD 1929 ADD 0.85 FEET.
19) ALL ROADWAY STANDARDS TO COMPLY WITH THE MANUAL OF UNIFORM MINIMUM STANDARDS, STATE OF FLORIDA.
20) ALL WATER AND WASTEWATER FACILITIES TO BE INSTALLED IN COMPLIANCE WITH PASCO COUNTY STANDARDS FOR DESIGN AND CONSTRUCTION OF WATER AND WASTEWATER FACILITIES.
21) ALL UTILITY LINES SHALL BE INSTALLED UNDERGROUND.
22) ALL ON-SITE WATER AND SEWER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE COMMUNITY DEVELOPMENT DISTRICT.
23) ENTIRE PROJECT LIES WITHIN FLOOD ZONE "A" ACCORDING TO FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NO. 12101C0380F PANEL 380 OF 500 DATED SEPTEMBER 26, 2014 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
24) A MINIMUM OF 16" OF SOD STRIP WILL BE PROVIDED ALONG ALL ROADWAYS PER PASCO COUNTY REQUIREMENTS.
25) NO WETLANDS OR WETLAND SETBACKS EXIST ON THE SUBJECT SITE.
26) SIDEWALKS WILL BE PROVIDED IN THE LOCATIONS INDICATED ON THESE PLANS. UNLESS OTHERWISE SHOWN, ALL SIDEWALKS SHALL BE A MINIMUM OF FIVE (5) FEET WIDE, 4½" THICK 3,000 P.S.I., FIBER REINFORCED CONCRETE, CONSTRUCTED ON NON-YIELDING SUBGRADE.
27) SIDEWALK CLEAR ZONE SHALL BE FREE OF OBSTACLES, INCLUDING BUT NOT LIMITED TO SHRUBS, TREES, FENCES, ABOVE GROUND UTILITIES, I.E. POWER POLES, STREET LIGHTS, GUY ANCHORS, FIRE HYDRANTS, MAIL BOXES, STREET SIGNS AND UTILITY MARKERS.
28) CURB RAMPS SHALL BE PROVIDED PER FDOT INDEX 304 WITH DETECTABLE WARNING STRIPS ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.
29) ALL LANDSCAPE AND SODDED AREAS WILL BE IRRIGATED.
30) THIS PROJECT WILL COMPLY WITH THE PASCO COUNTY TREE PROTECTION AND RESTORATION ORDINANCE.
31) ALL CONSTRUCTION WORK, INCLUDING ROAD, DRAINAGE AND UTILITIES, SHALL BE CONSTRUCTED IN ACCORDANCE WITH PASCO COUNTY DESIGN STANDARDS AND TESTED IN COMPLIANCE WITH THE PASCO COUNTY ENGINEERING SERVICE DEPARTMENT TESTING SPECIFICATIONS FOR CONSTRUCTION OF ROADS, STORM DRAINAGE AND UTILITIES.
32) IF DURING CONSTRUCTION ACTIVITIES ANY EVIDENCE OF HISTORIC RESOURCES, INCLUDING BUT NOT LIMITED TO ABORIGINAL OR HISTORIC POTTERY, PREHISTORIC STONE TOOLS, BONE OR SHELL TOOLS, HISTORIC TRASH PITS, OR HISTORIC BUILDING FOUNDATION, ARE DISCOVERED, WORK SHALL COME TO AN IMMEDIATE STOP AND THE FLORIDA DEPARTMENT OF HISTORIC RESOURCES (STATE HISTORIC PRESERVATION OFFICER) AND PASCO COUNTY SHALL BE NOTIFIED WITHIN TWO WORKING DAYS OF THE RESOURCES FOUND ON SITE.
33) IF DURING THE CONSTRUCTION ACTIVITIES ANY EVIDENCE OF THE PRESENCE OF STATE AND FEDERALLY PROTECTED PLANT AND/OR ANIMAL SPECIES ARE DISCOVERED, WORK SHALL COME TO AN IMMEDIATE STOP AND PASCO COUNTY SHALL BE NOTIFIED WITHIN TWO WORKING DAYS OF THE PLANT AND/OR ANIMAL SPECIES FOUND ON SITE.
34) ALL PROPOSED SIGNS MUST BE APPLIED FOR, APPROVED, AND PERMITTED ON AN INDIVIDUAL BASIS APART FROM ANY ULTIMATELY-APPROVED SITE PLAN. APPROVAL OF THIS SITE PLAN DOES NOT CONSTITUTE APPROVAL OF ANY SIGNAGE.
35) ALL 20'x20' CLEAR-SITE AREAS SHALL BE KEPT FREE OF ANY SIGNAGE PLANTINGS, TREES, ETC. IN EXCESS OF THREE-AND-A-HALF (3-1/2) FEET IN HEIGHT.
36) HANDICAP PARKING SPACES SHALL BE PROPERLY SIGNED AND STRIPED IN ACCORDANCE WITH FLORIDA STATUTE 316, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, OR OTHER APPLICABLE STANDARDS.
37) THE ENGINEER CERTIFIES THAT SITE FEATURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT.
38) ALL ON-SITE PARKING SPACES SHALL BE SIGNED AND STRIPED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. PARKING SPACES, DIRECTIONAL ARROWS, AND STOP BARS SHALL BE STRIPED IN WHITE. IT SHALL BE THE DEVELOPER'S RESPONSIBILITY TO PROPERLY SIGN AND STRIPE IN ACCORDANCE WITH APPLICABLE STANDARDS.
39) THE OWNER/DEVELOPER ACKNOWLEDGES THAT THIS APPROVAL DOES NOT INCLUDE ANY WORK IN COUNTY RIGHT-OF-WAY. ANY RIGHT-OF-WAY WORK SHALL BE A FUNCTION OF AN APPROVED RIGHT-OF-WAY PERMIT.
40) THE OWNER/DEVELOPER ACKNOWLEDGES THAT THE SITE AND ITS SUBSEQUENT BUILDING PERMITS SHALL COMPLY WITH ALL MPUD CONDITIONS.
41) ALL STRUCTURES, INCLUDING BUFFER WALLS, RETAINING WALLS, SIGNAGE, ETC. SHALL REQUIRE A BUILDING PERMIT.
42) ARCHITECT OR LIGHTING CONSULTANT SHALL ENSURE THAT FINAL LIGHTING PLANS MEET THE REQUIREMENTS OF THE PASCO COUNTY LDC, INCLUDING PROHIBITIONS AGAINST OFF-SITE LIGHT SPILLAGE AND GLARE.
43) NO IRRIGATION SYSTEM OR LANDSCAPING SHALL BE INSTALLED IN ANY COUNTY OR STATE RIGHT-OF-WAY WITHOUT ISSUANCE OF APPROPRIATE RIGHT-OF-WAY USE PERMIT.
44) FUGITIVE DUST EMISSIONS SHALL BE CONTROLLED BY SPRINKLING AS NECESSARY.
45) ON-SITE BURNING SHALL NOT BE EMPLOYED WITHOUT APPROVAL FROM THE FIRE MARSHALL.
46) THE SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION UNTIL THE SITE IS PERMANENTLY STABILIZED.
47) ALL PROJECTS MUST COMPLY WITH PASCO COUNTY FIRE HYDRANT ORDINANCE NO. 46-51.
48) FIRE HYDRANTS SHALL BE INSTALLED AND IN SERVICE PRIOR TO THE ACCUMULATION OF COMBUSTIBLES.
49) PER THE NATIONAL FIRE PROTECTION ASSOCIATION, NFPA-1, 16.4.3.1.3: WHERE UNDERGROUND WATER MAINS AND HYDRANTS ARE TO BE PROVIDED, THEY SHALL BE INSTALLED, COMPLETED, AND IN SERVICE PRIOR TO BUILDING CONSTRUCTION WORK
50) PER NFPA-1, 18.3.4.1: CLEARANCES OF 7.5 FEET IN FRONT OF AND TO THE SIDES OF THE FIRE HYDRANT WITH A FOUR-FOOT CLEARANCE TO THE REAR MUST BE MAINTAINED AT ALL TIMES.
51) PRIOR TO CONSTRUCTION, A BUILDING PERMIT SHALL BE OBTAINED FOR ALL STRUCTURES THAT HAVE A FOOTER, REGARDLESS OF SIZE, THROUGH PASCO COUNTY CENTRAL PERMITTING. (E.G., INCLUDING BUT NOT LIMITED TO BUILDINGS, ACCESSORIES, RETAINING WALLS, AND ETC.).
52) ALL DEMOLITION DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF.
53) ANY OFF SITE DISTURBANCE SHALL BE RESTORED TO THE PRE-CONSTRUCTION CONDITION OR BETTER.
54) AS APPLICABLE, THE OWNER/DEVELOPER SHALL PROVIDE COPIES OF THE REQUIRED PERMITS FROM THE RESPECTIVE GOVERNING AGENCIES, PRIOR TO ISSUANCE OF THE SITE DEVELOPMENT PERMIT (SDP).
55) THE SUBJECT PROPERTY IS NOT LOCATED WITHIN THE 10-YEAR WELLHEAD PROTECTION AREA.
56) THESE PLANS WERE PREPARED WITH THE BENEFIT OF AND IN CONFORMANCE TO THE GEOTECHNICAL RECOMMENDATIONS IN THE REPORTS BY MORTENSEN ENGINEERING, INC. ENTITLED AS FOLLOWS: "STORMWATER POND AREA SOILS STUDY" (DATED 9/16/13); "ROADWAY SOILS STUDY RESIDENTIAL/PARCEL ROADWAYS" (DATED 10/29/13); "GEOTECHNICAL ENGINEERING SERVICES/ROADWAY SOILS STUDY - COLLECTOR ROADWAYS/BOULEVARDS" (DATED 6/19/13); AND "FOUNDATION AND SOILS STUDY- STARKEY RANCH WELCOME (SALES) CENTER" (DATED 2/4/14).
57) SURFACE WATER MANAGEMENT FOR THIS PROJECT IS PROVIDED BY POND 1-2, WHICH IS PART OF THE STARKEY RANCH VILLAGE 1 PROJECT. THIS PROJECT WILL BE CONSTRUCTED SIMULTANEOUSLY WITH OR SUBSEQUENT TO COMPLETION OF POND 1-2.
58) REFUSE PICK-UP WILL BE PROVIDED VIA CURBSIDE SERVICE. NO DUMPSTER IS PROPOSED.
59) CONTRACTOR TO PROVIDE STRUCTURAL DESIGN PREPARED BY A REGISTERED FLORIDA PROFESSIONAL ENGINEER FOR PROPOSED WALLS AND ASSOCIATED FOOTERS.

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STARKEY RANCH
WELCOME CENTER

PRELIMINARY SITE PLAN

PREPARED FOR: WS-TSR, LLC

	DATE	DESCRIPTION
6	12/17/2014	FINAL SUBMITTAL
5	11/10/2014	SITE PLAN MODIFICATION
2	4/11/2014	COUNTY COMMENTS
	02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	PSP
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:______________
REGISTRATION NO. 52717

C-105

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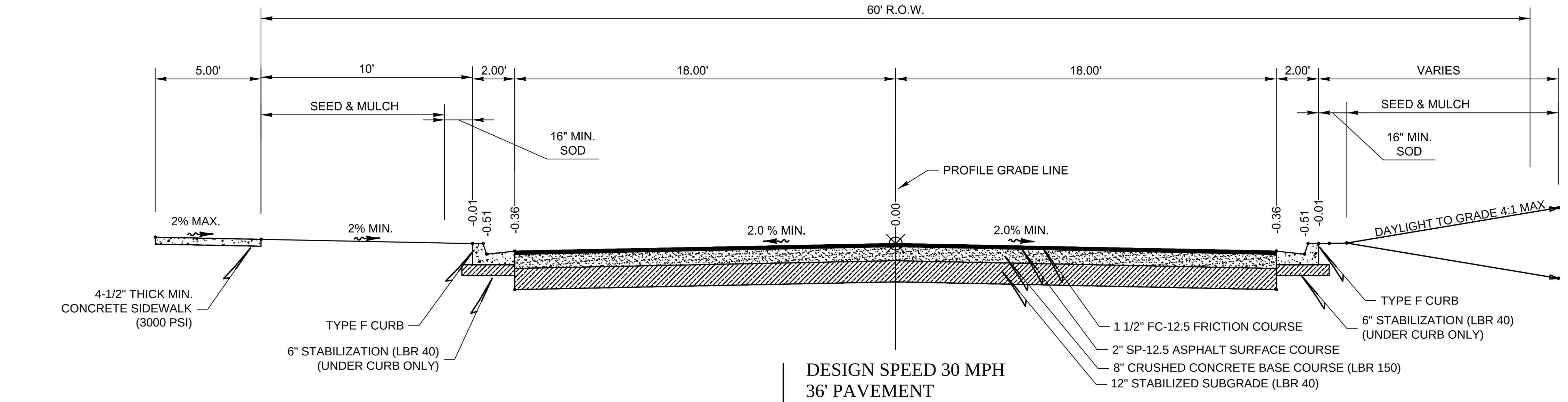
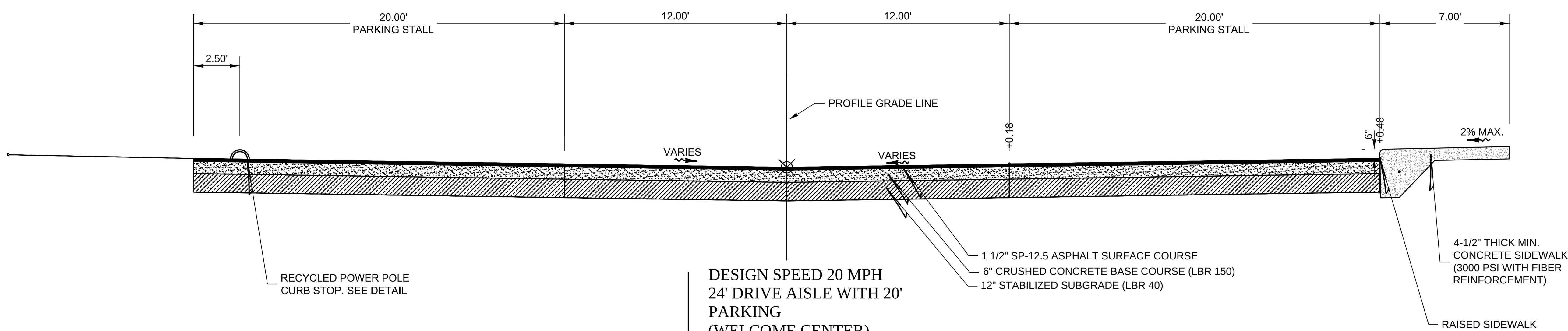


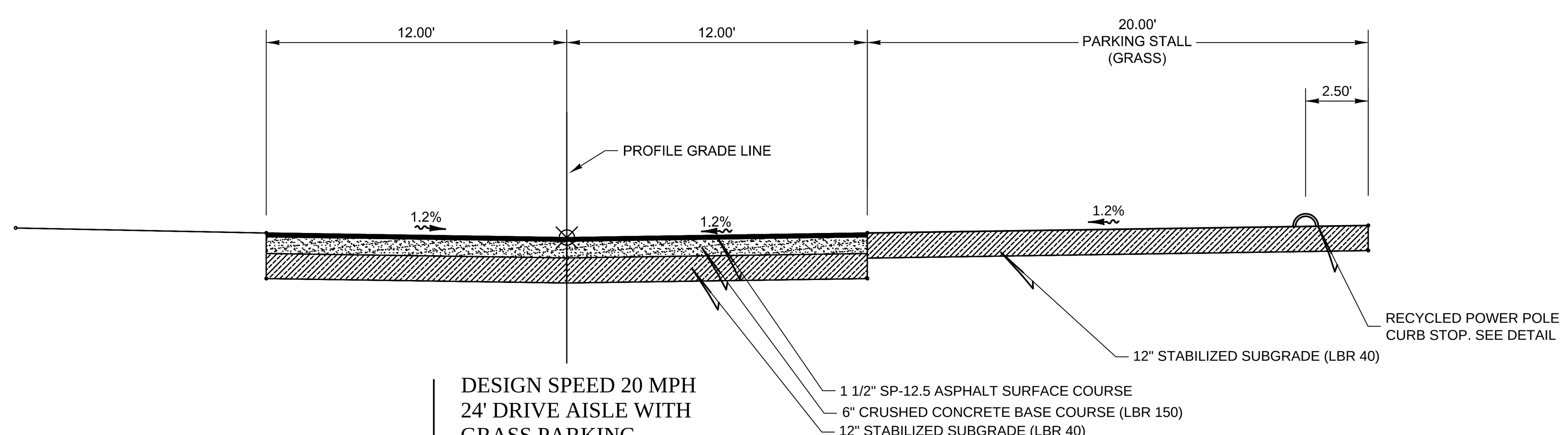
DESIGN SPEED 30 MPH
36' PAVEMENT
(PRIVATE ROADWAY EXTENSION)
60' R/W

SCALE: 1" = 5'



DESIGN SPEED 20 MPH
24' DRIVE AISLE WITH 20' PARKING
(WELCOME CENTER)

SCALE: 1" = 5'



DESIGN SPEED 20 MPH
24' DRIVE AISLE WITH GRASS PARKING
(WELCOME CENTER)

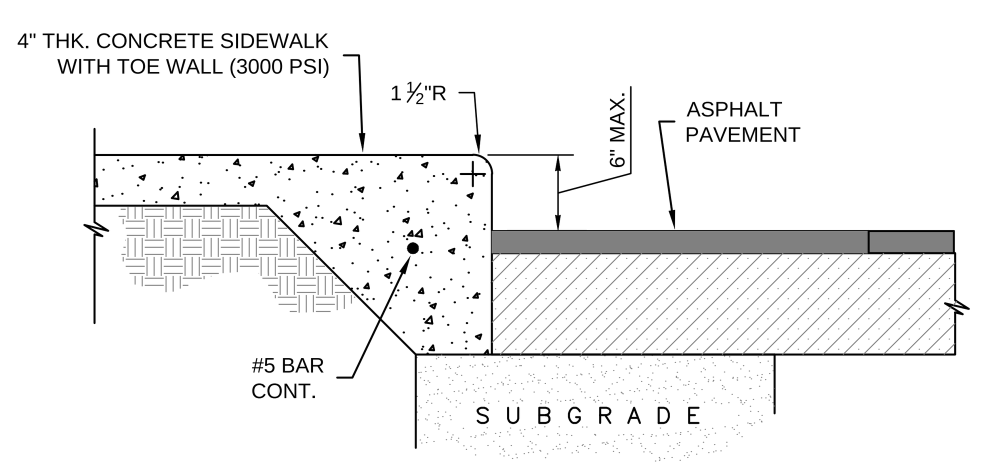
SCALE: 1" = 5'

PROPOSED ROADWAY DESIGN	
STR. # FOR PRIVATE ROADWAY EXTENSION= 3.50	
LAYER COEFFICIENTS	THICKNESS
0.44 - TYPE FC-12.5 FRICTION COURSE	1.50"
0.44 - TYPE SP-12.5 ASPHALT SURFACE COURSE	2.00"
0.15 - CRUSHED CONCRETE BASE COURSE (LBR 150)	8"
0.08 - STABILIZED SUBGRADE (12" MIN.)	12"
SN = (0.44 x 1.50) + (0.44 x 2) + (0.15 x 8) + (0.08 x 12) = 3.70	

PROPOSED ROADWAY DESIGN	
STR. # FOR PRIVATE ROADWAY EXTENSION=3.50 (FOR SOIL CEMENT BASE ALTERNATIVE)	
LAYER COEFFICIENTS	THICKNESS
0.44 - TYPE FC-12.5 FRICTION COURSE	1.50"
0.44 - TYPE SP-12.5 ASPHALT SURFACE COURSE	2.00"
0.15 - SOIL CEMENT BASE	10"
0.04 - COMPACTED SUBGRADE	12"
SN = (0.44 x 1.50) + (0.44 x 2.0) + (0.15 x 10) + (0.04 x 12) = 3.52	

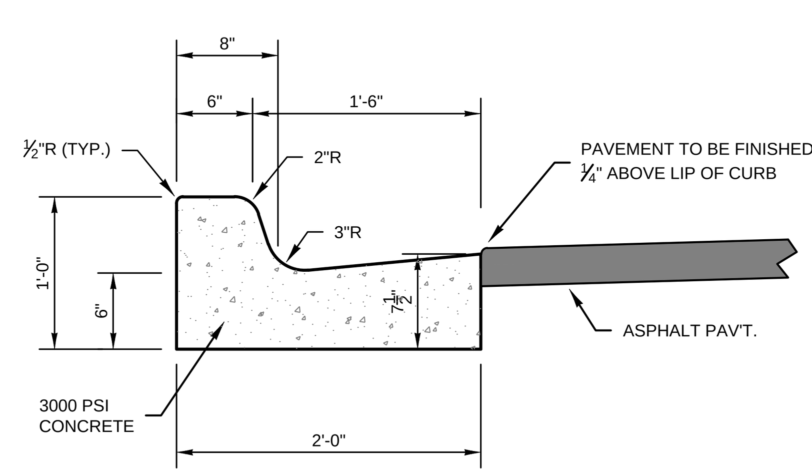
PROPOSED ROADWAY DESIGN	
FOR ON-SITE PARKING & DRIVE AISLES	
LAYER COEFFICIENTS	THICKNESS
0.44 - TYPE SP-12.5 ASPHALT SURFACE COURSE	1.50"
0.15 - CRUSHED CONCRETE BASE COURSE (LBR 150)	6"
0.08 - STABILIZED SUBGRADE (12" MIN.)	12"
SN = (0.44 x 1.50) + (0.15 x 6) + (0.08 x 12) = 2.52	

PROPOSED ROADWAY DESIGN	
FOR ON-SITE PARKING & DRIVE AISLES (FOR SOIL CEMENT BASE ALTERNATIVE)	
LAYER COEFFICIENTS	THICKNESS
0.44 - TYPE SP-12.5 ASPHALT SURFACE COURSE	1.50"
0.15 - SOIL CEMENT BASE	6"
0.04 - COMPACTED SUBGRADE	12"
SN = (0.44 x 1.50) + (0.15 x 6) + (0.04 x 12) = 2.04	



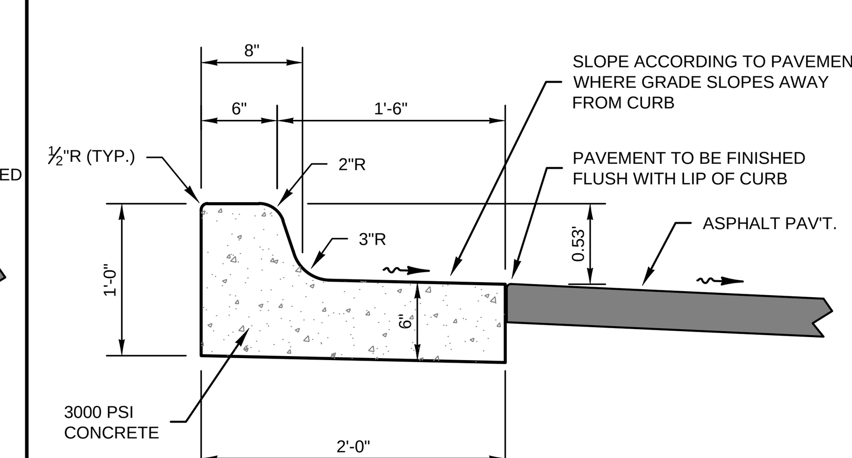
6" RAISED SIDEWALK/PAVEMENT INTERFACE

SCALE: 1" = 1'



TYPE "F" CURB & GUTTER

SCALE: 1" = 1'



TYPE "F" CURB & GUTTER ROTATED

SCALE: 1" = 1'

CRUSHED CONCRETE BASE WITH ALTERNATE FOR SOIL-CEMENT:

1. Pavement wearing surface shall be asphaltic concrete of type and thickness shown in detail and shall meet current Department of Transportation Specifications.
2. Pavement base shall be crushed concrete, as designated in plans, and shall be compacted to a minimum thickness as shown.
3. Crushed concrete road base material shall be of uniform quality, free of all organics, steel rebar, asphalt debris, and any other deleterious materials.
4. Crushed concrete road base material shall generally conform to the gradation chart for graded aggregate base, FDOT Section 204 and 901, tested at a frequency required by the Governing Agency having jurisdiction. In addition, crushed concrete shall conform to the applicable specification contained within Pasco County Design Standards, "Crushed Concrete Base Specification - Index 104."
5. Crushed concrete road base material shall have a minimum compacted dry density of 114.0 pcf (per AASHTO T-180), and a minimum Limerock Bearing Ratio (LBR) of 150 (under-tolerance +/- 5%), tested at a frequency required by the Governing Agency having jurisdiction, or in the absence thereof, by minimum FDOT standards.
6. Base single-course lifts shall not exceed 6 inches (compacted, 8 inches loose).
7. Crushed concrete road base shall be compacted to a minimum of 100% of Modified Proctor per AASHTO T-180, tested at a frequency required by the Governing Agency having jurisdiction, or in the absence thereof, by minimum FDOT standards.
8. Crushed concrete base shall have a 12-inch thick stabilized subgrade, Type "B" stabilization in accordance with FDOT Section 160 and shall have a minimum Limerock Bearing Ration (LBR) of 40 or greater. Subgrade shall be compacted to the minimum thickness as shown. Subgrade shall be compacted to a minimum of 98% Modified Proctor per AASHTO T-180.
9. Compacted subgrade (beneath stabilized subgrade, if required, or beneath base materials) shall be prepared in accordance with FDOT Index 505, latest edition. Embankment fills or natural sands to 24 inches below the bottom of the pavement base (if no stabilized subgrade), or to 24 inches below the bottom of stabilized subgrade, shall be sandy soils (A-3 or SP/SP-SM) with typically 15% fines or less passing the No. 200 sieve.
10. Crushed concrete base surface shall be inspected and approved by the engineer prior to any paving operation.
11. All curbs and gutters shall be placed on a foundation of Type "B" stabilized subgrade with a minimum LBR value of 40 (or a minimum FBV of 75) which has been compacted to a minimum density of ninety-eight percent (98%) of the maximum density as determined by AASHTO T-180 for a minimum depth of twelve (12) inches.
12. All Portland Cement Concrete shall have a minimum compressive strength of 3000 psi.
13. Roadway underdrain has been located on these plans to ensure adequate base protection. Prior to curb construction, the Geotechnical Engineer shall review the predesign borings and, along with their field inspection, make a recommendation regarding additional underdrain requirements.
14. Should no underdrain be specified on the plans, the Contractor shall include 1,000 linear feet of underdrain at unit prices for bid purposes.
15. All testing referenced above shall, at a minimum, be at the frequency required by the Governing Agency having jurisdiction, or in the absence thereof, by minimum FDOT standards.

ALTERNATE FOR SOIL-CEMENT BASE MATERIAL:

1. Soil-cement mix design shall be provided a minimum 30 days in advance of placement of base material for approval by the Engineer. The soil-cement product shall be in accordance with PCA standards.
2. Soil-cement surface shall be inspected and approved by the Engineer prior to any paving operation.
3. Subgrade for soil-cement shall be prepared in accordance with FDOT Index No. 505, latest edition. Embankment fills or natural sands to 24-inches below the bottom of the pavement base (if no stabilized subgrade), or to 24-inches below the bottom of stabilized subgrade, shall be sandy soils (A-3 or SP/SP-SM) with typically 15% fines or less passing the No. 200 sieve.
4. Subgrade under a soil-cement base shall be proof-rolled to grade, as directed by the Engineer and approved by the Engineer with suitable compaction equipment to achieve a density of ninety-eight (98%) percent Modified Proctor for a depth of twelve (12) inches prior to placing soil-cement base.
5. Subgrade under soil-cement base shall NOT be stabilized unless otherwise directed by Engineer of Record.

Contractor may propose alternate pavement designs. Contractor shall submit any pavement alternatives to Engineer for approval prior to final subgrade preparations.

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STARKEY RANCH
WELCOME CENTER

ROADWAY TYPICAL SECTIONS

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	RS
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

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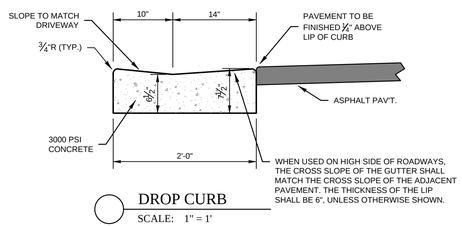
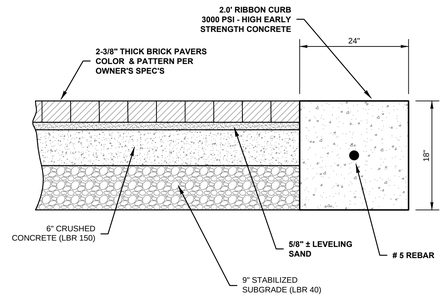


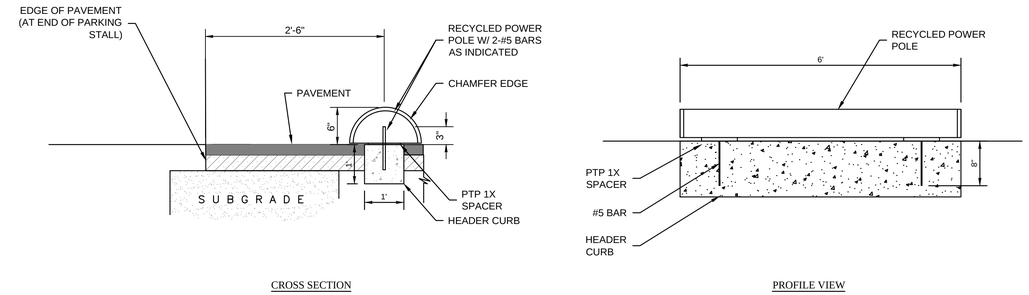
DROP CURB

SCALE: 1" = 1'



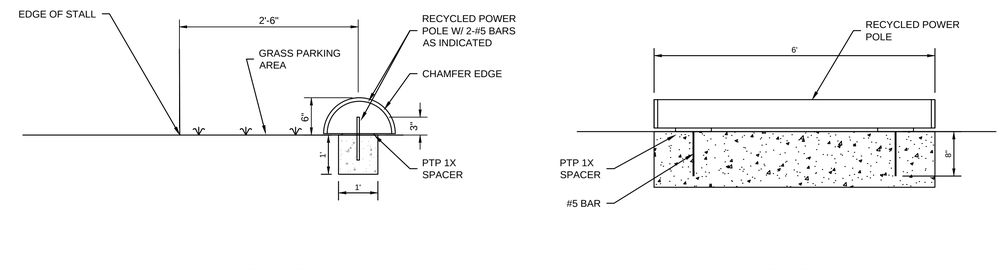
DECORATIVE PAVER SECTION

SCALE: NTS



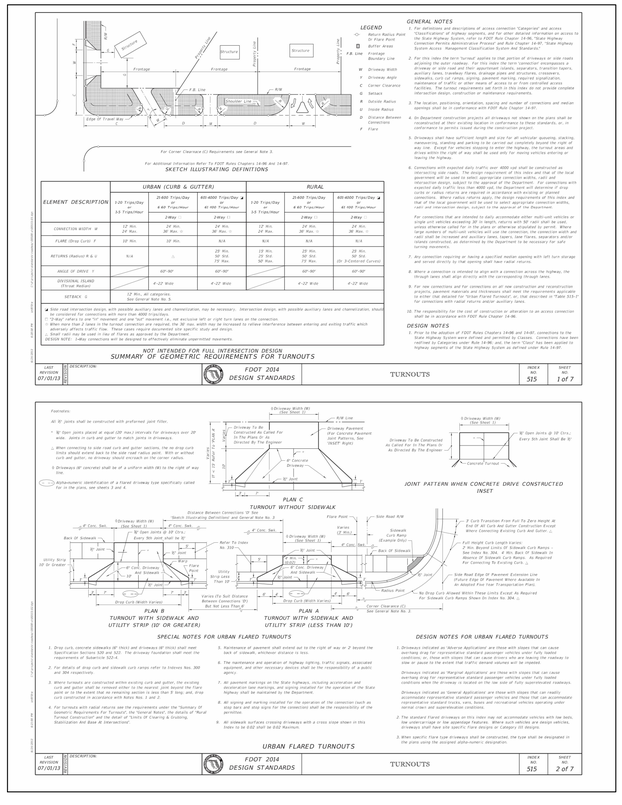
RECYCLED POWER POLE CURB STOP DETAIL-PAVED AREAS

SCALE: NTS



RECYCLED POWER POLE CURB STOP DETAIL-GRASS AREAS

SCALE: NTS



PASCO COUNTY CRUSHED CONCRETE BASE SPECIFICATIONS

THE WORK SPECIFIED UNDER THIS SECTION CONSISTS OF THE CONSTRUCTION OF ROADWAY BASE UTILIZING CRUSHED CONCRETE (RECLAIMED CONCRETE AGGREGATE BASE MATERIAL) ON A PREPARED STABILIZED SUBGRADE OF LBR 40 WITH A DENSITY OF 98% OF THE MODIFIED PROCTOR MAXIMUM DENSITY AS DETERMINED BY FM 1-T 180, METHOD D, IN CONFORMITY WITH THE LINES, GRADES NOTES AND TYPICAL CROSS SECTIONS SHOWN IN THE PLANS, AND AS DIRECTED BY THE COUNTY ENGINEER.

THE CONSTRUCTION OF CRUSHED CONCRETE BASE SHALL CONFORM TO THE REQUIREMENTS OF THIS SECTION, OR, IN LIEU THEREOF, SUCH REQUIREMENTS AS MAY BE ESTABLISHED BY THE COUNTY ENGINEER DURING CONSTRUCTION. THE COUNTY ENGINEER SHALL HAVE FULL AUTHORITY TO MODIFY THE PROVISIONS OF THIS SECTION AS DEEMED NECESSARY, IN HIS OPINION, TO MEET FIELD CONDITIONS AND REQUIREMENTS.

MATERIALS

CRUSHED CONCRETE MUST BE PRODUCED FROM A SOURCE APPROVED BY FLORIDA DEPARTMENT OF TRANSPORTATION OR THE COUNTY ENGINEER. THE SUPPLIER SHALL HAVE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) PERMIT REQUIREMENTS SECTION 62-701.730 OR BE QUALIFIED AS A CLEAN DEBRIS SOURCE UNDER DEP RULES. THE RECLAIMED CONCRETE AGGREGATE BASE SHALL CONSIST OF CRUSHED CONCRETE MATERIAL DERIVED FROM THE CRUSHING OF HARD PORTLAND CEMENT CONCRETE.

COMPOSITION

BASE MATERIAL SHALL CONFORM TO THE FOLLOWING **GRADATION REQUIREMENTS**:

SIEVE SIZE	PERCENT BY WEIGHT PASSING
2 INCH	100
3/4 INCH	65 to 95
3/8 INCH	40 to 85
No. 4	25 to 65
No. 10	20 to 50
No. 50	5 to 25
No. 200	0 to 10

BASE MATERIAL SHALL CONFORM TO THE FOLLOWING **PLASTICITY REQUIREMENTS**:

CRUSHED CONCRETE BASE SHALL NOT CONTAIN PLASTIC SOILS SUCH THAT THE No. 40 SIEVE MATERIAL SHALL BE NON-PLASTIC.

LIQUID LIMIT (AS DETERMINED BY AASHTO T89) (LESS THAN 25) PER MATERIAL TYPE

THE FINISHED IN-PLACE CRUSHED CONCRETE BASE **LIMEROCK BEARING RATIO** SHALL HAVE A MINIMUM (LBR) OF 150.

CRUSHED CONCRETE BASE SHALL BE FREE OF ALL MATERIALS THAT FALL UNDER THE CATEGORY OF SOLID WASTE OR HAZARD MATERIALS AS DEFINED BY THE STATE OR LOCAL JURISDICTION AND SHALL MEET ALL DEP PERMIT REQUIREMENTS WHICH PERTAIN TO CONSTRUCTION, DEMOLITION AND RECYCLING OF THESE MATERIALS. CRUSHED CONCRETE BASE SHALL BE ASBESTOS FREE. THE FOLLOWING LIMITS SHALL NOT BE EXCEEDED:

BITUMINOUS CONCRETE.....1% BY WEIGHT
BRICKS.....1% BY WEIGHT
WOOD AND OTHER ORGANIC SUBSTANCES.....0.5% BY WEIGHT
HEAVY METALS (EXCEPT LEAD).....0.1% BY WEIGHT
LEAD.....5 PARTS PER MILLION
REINFORCED STEEL AND WELDED WIRE FABRIC.....0.1% BY WEIGHT
PLASTER AND GYPSUM BOARD.....0.1% BY WEIGHT

THE MATERIAL FOR CRUSHED CONCRETE BASE SHALL CONSIST ONLY OF CRUSHED CONCRETE PAVEMENT AND SUCH ADDITIVE MATERIAL AS MAY BE APPROVED BY THE COUNTY ENGINEER FOR THE PURPOSE OF FACILITATING CONSTRUCTION AND ACHIEVING THE DESIRED CHARACTERISTICS OF THE FINISHED IN-PLACED PRODUCT. APPROVAL FROM THE COUNTY ENGINEER IS REQUIRED BEFORE PLACING MATERIAL FROM MORE THAN ONE SOURCE. ONCE APPROVED, A CHANGE IN THE SOURCE OF BASE MATERIAL SHALL REQUIRE ADDITIONAL ACCEPTANCE TESTING. THE MATERIAL SHALL NOT CONTAIN LUMPS, BALLS OR POCKETS OF SAND OR CLAY MATERIAL IN SIZE OR QUANTITY SUFFICIENT TO BE DETRIMENTAL TO THE PROPER BONDING, FINISHING, STRENGTH OF THE CONCRETE BASE. EXISTING BASE IS TO BE REMOVED TO CONSTRUCT THE NEW BASE.

INSPECTION

SUBGRADE AND BASE INSPECTIONS SHALL BE CONDUCTED BY THE ENGINEER OF RECORD AND THE COUNTY INSPECTOR PRIOR TO SURFACE COURSE CONSTRUCTION.

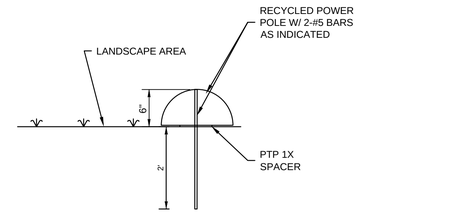
NOTE:
NO DEVIATIONS TO THIS DETAIL WILL BE PERMITTED UNLESS APPROVED BY THE COUNTY ENGINEER.
ANY PROPOSED ALTERATIONS SHALL BE CLEARLY IDENTIFIED AND HIGHLIGHTED ON DETAIL.

PASCO COUNTY ENGINEERING SERVICES
DESIGN STANDARDS

CRUSHED - CONCRETE BASE SPECIFICATIONS

APPROVED BY JCW
BCC APPROVAL
REVISED

Sheet No. 1 of 2
Index No. 104



NOTE: TO BE USED OUTSIDE OF PARKING STALLS-
FOR PARKING STALLS, SEE RECYCLED POWER
POLE CURB STOP DETAIL

RECYCLED POWER POLE LANDSCAPE BORDER DETAIL

SCALE: NTS

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STARKEY RANCH WELCOME CENTER

ROADWAY TYPICAL SECTIONS

WS-TSR, LLC

PREPARED BY: CWR

	DATE	DESCRIPTION
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2	4/11/2014	COUNTY COMMENTS
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DRAWN BY: BUDEN

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GARY D. MILLER
DATE:
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C-201

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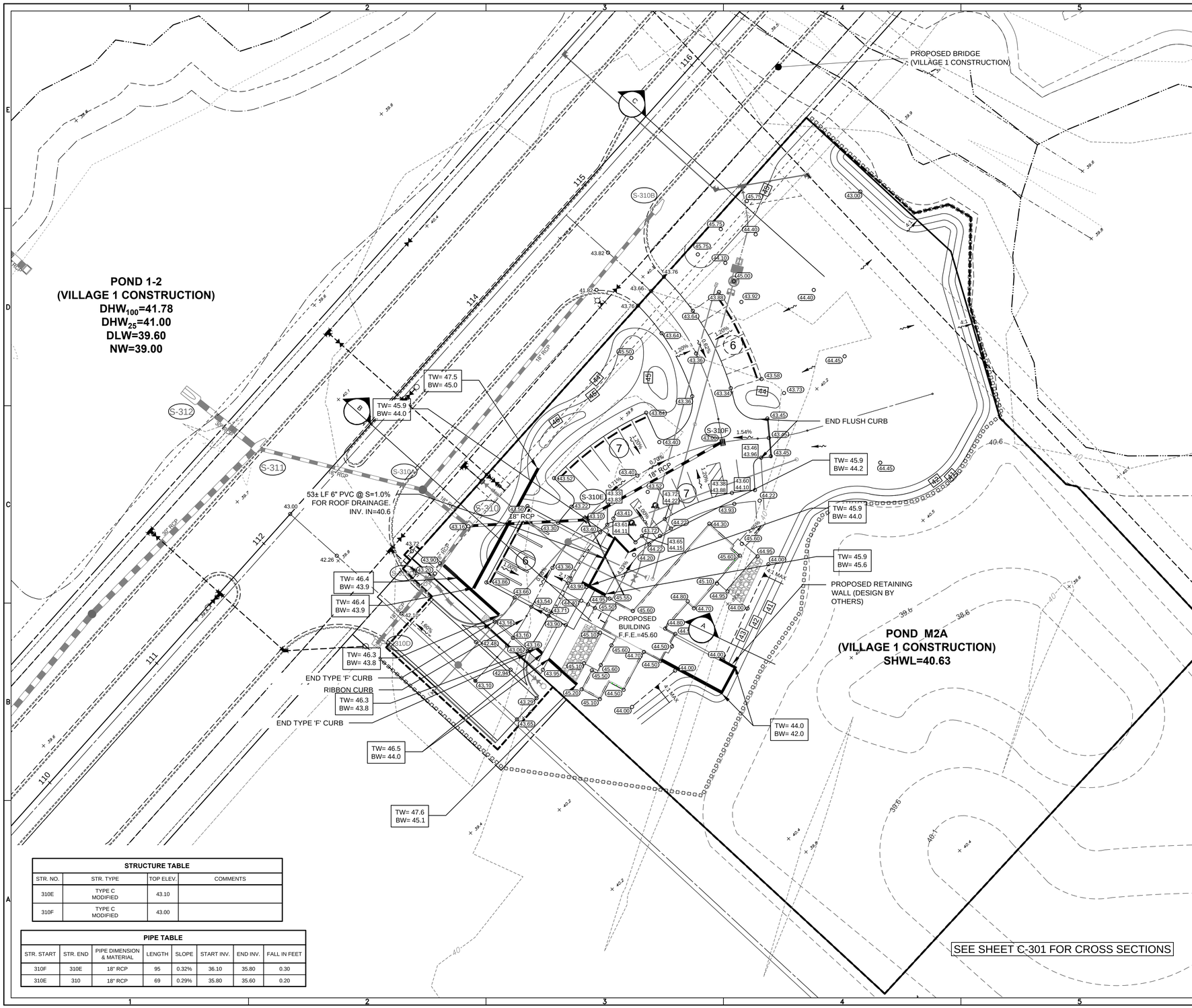

STRUCTURE TABLE			
STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
310E	TYPE C MODIFIED	43.10	
310F	TYPE C MODIFIED	43.00	

PIPE TABLE							
STR. START	STR. END	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
310F	310E	18" RCP	95	0.32%	36.10	35.80	0.30
310E	310	18" RCP	69	0.29%	35.80	35.60	0.20

N

0 30 60

GRAPHIC SCALE: 1" = 30'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

GENERAL LEGEND

- FLOATING TURBIDITY BARRIER
- STAKED EROSION CONTROL
- LANDSCAPE BUFFER LINE
- PROJECT LIMIT LINE
- RIGHT-OF-WAY LINE
- UTILITY EASEMENT
- FEMA FLOOD ZONE LINE
- WETLAND LINE
- WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
- PROPOSED PAVER AREA
- PROPOSED GRASS PARKING AREA

DRAINAGE LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE
S-310	S-310	STRUCTURE NO.
15.00	15.00	SPOT ELEVATION
	44.48 / 44.98	EOP ELEVATION / TOP OF SIDEWALK ELEVATION
15	15	CONTOUR
	F.F.E.=000.00	FINISH FLOOR ELEVATION
		DIRECTION OF SURFACE FLOW

DRAINAGE & GRADING NOTES

1. ALL SODDED SLOPES STEEPER THAN 4:1 SHALL BE INSTALLED WITH SOD PEGS.
2. ALL FIRST FLOOR ELEVATION SHALL BE A MINIMUM OF ONE FOOT ABOVE THE BASE FLOOD ELEVATION (BFE).
3. ALL FIRST FLOOR ELEVATION SHALL BE A MINIMUM OF 16 INCHES ABOVE THE HIGHEST CROWN LINE OF THE STREET LYING BETWEEN THE PROJECTION OF THE SIDE BUILDING LINES.
4. NO EXCAVATION SHALL EXTEND BELOW THE PERMITTED DESIGN DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS, UNLESS ADDITIONAL TESTING SUPPORTS OTHERWISE; NO LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL AND/OR NO LIMESTONE MATERIALS SHALL BE EXCAVATED REGARDLESS IF THEY ARE ENCOUNTERED WITHIN THE PERMITTED DEPTHS/ELEVATIONS. IF ANY LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIALS OR LIMESTONE MATERIALS ARE ENCOUNTERED ABOVE THE PERMITTED DEPTHS/ELEVATIONS, THEN EXCAVATION OPERATIONS SHALL CEASE IN THE GENERAL LOCATION AND THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY.
5. SHOULD ANY NOTICEABLE SOIL SLUMPING OR SINKHOLE FORMATION BECOME EVIDENT, THE APPLICANT/DEVELOPER SHALL IMMEDIATELY NOTIFY THE COUNTY, TAMPA BAY WATER (TBW), AND SWFWMD, AND ADOPT ONE OR MORE OF THE FOLLOWING PROCEDURES AS DETERMINED TO BE APPROPRIATE BY THE COUNTY AND SWFWMD:
   - A. IF THE SLUMPING OR SINKHOLE FORMATION BECOMES EVIDENT BEFORE OR DURING CONSTRUCTION ACTIVITIES, STOP ALL WORK (EXCEPT FOR MITIGATION ACTIVITIES) IN THE AFFECTED AREA AND REMAIN STOPPED UNTIL THE COUNTY AND SWFWMD APPROVE RESUMING CONSTRUCTION ACTIVITIES.
   - B. TAKE IMMEDIATE MEASURES TO ENSURE NO SURFACE WATER DRAINS INTO THE AFFECTED AREAS.
   - C. VISUALLY INSPECT THE AFFECTED AREA.
   - D. EXCAVATE AND BACKFILL OR GROUT AS REQUIRED TO FILL THE AFFECTED AREA AND PREVENT FURTHER SUBSIDENCE.
   - E. USE SOIL REINFORCEMENT MATERIALS IN THE BACKFILLING OPERATION, WHEN APPROPRIATE.
   - F. IF THE AFFECTED AREA IS IN THE VICINITY OF A WATER-RETENTION AREA, MAINTAIN A MINIMUM DISTANCE OF TWO FEET FROM THE BOTTOM OF THE RETENTION POND TO THE SURFACE OF THE LIME-ROCK OR KARST CONNECTION.
   - G. IF THE AFFECTED AREA IS IN THE VICINITY OF A WATER-RETENTION AREA AND THE ABOVE METHODS DO NOT STABILIZE THE COLLAPSE, RELOCATE THE RETENTION AREA.
   - H. DISCHARGE OF STORM-WATER INTO DEPRESSIONS WITH DIRECT OR DEMONSTRATED HYDROLOGIC CONNECTION TO THE FLORIDAN AQUIFER SHALL BE PROHIBITED.
6. UPON COMPLETION OF LAND DEVELOPMENT CONSTRUCTION ACTIVITIES, A PROFESSIONAL ENGINEER SHALL PROVIDE A CERTIFICATION TO PASCO COUNTY THAT THE PROJECT, INCLUDING THE PAD AREA, COMPLIES WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL / GEOLOGICAL ENGINEERING REPORT.
7. THE ENGINEER RESPONSIBLE FOR THE PROJECT SHALL CERTIFY TO PASCO COUNTY THAT THE UNDERDRAINS HAVE BEEN PROPERLY INSTALLED PRIOR TO THE INSTALLATION OF ANY ASPHALT. CERTIFICATION SHALL STRICTLY COMPLY WITH THE UNDERDRAIN CERTIFICATION FORM AVAILABLE IN "ENGINEERING SERVICES DEPARTMENT: A PROCEDURAL GUIDE FOR THE PREPARATION OF ASSURANCES OF COMPLETION AND MAINTENANCE"
8. PROPOSED MAINTENANCE EASEMENTS MUST CONTAIN CLEAR OPERABLE ACCESSIBILITY.
9. ALL WELCOME CENTER ROOF RUNOFF SHALL BE COLLECTED BY THE STORMWATER CONVEYANCE SYSTEM.
10. ALL SLOPES ALONG THE RIGHT-OF-WAY SHALL BE MAINTAINED.

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Transportation Engineering
Ecological Services • Landscape Architecture
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Landscape Architecture Certificate of Authorization No. LC26000405
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Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

STARKEY RANCH
WELCOME CENTER

GRADING & DRAINAGE PLAN

WS-TSR, LLC

PREPARED BY: GDR

DATE	DESCRIPTION
11/10/2014	SITE PLAN MODIFICATION
4/11/2014	COUNTY COMMENTS
03/27/2014	UTILITY COMMENT REVISIONS
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	GD
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-300

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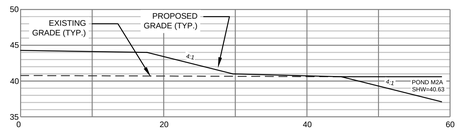
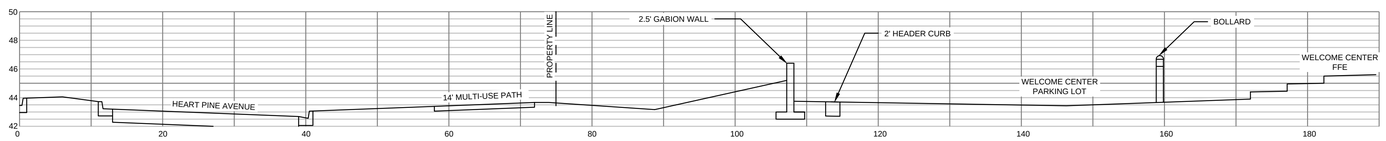


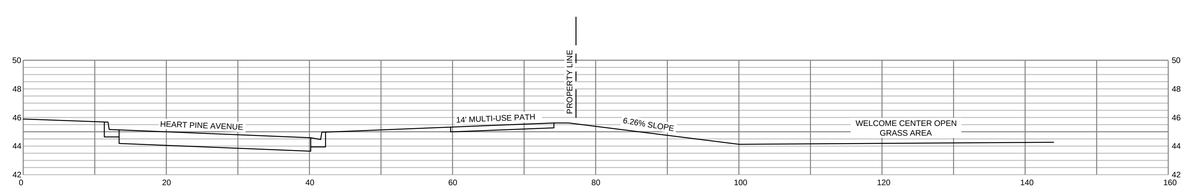
CROSS SECTION A

SCALE: 1"=10'



CROSS SECTION B

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'



CROSS SECTION C

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'

NOTE: ALL SLOPES ALONG THE RIGHT-OF-WAY SHALL BE MAINTAINED

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STARKEY RANCH WELCOME CENTER

GRADING & DRAINAGE PLAN

WS-TSR, LLC

PREPARED BY: GDM

DATE	DESCRIPTION
11/10/2014	SITE PLAN MODIFICATION
4/11/2014	COUNTY COMMENTS
03/27/2014	UTILITY COMMENT REVISIONS
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	GD
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

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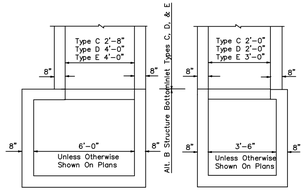
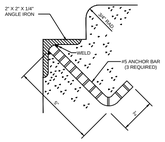


NOTE: Alt. B Structure Bottom Only. See Index No. 200

STRUCTURE BOTTOM FOR INLETS TYPE C, D & E

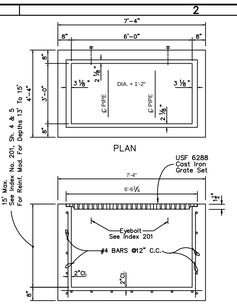
GENERAL NOTES

1. Recommended maximum pipe sizes shown are for concrete pipe. Pipe sizes larger than those recommended must be checked for fit.
2. All exposed corners and edges of concrete are to be chamfered .
3. All cast grates shall be rated for traffic loading (H-20) and seated on all four (4) sides. Contractor shall submit shop drawings for approval by Engineer of Record prior to ordering materials.
4. Grate seat shall be included in cost of inlet.

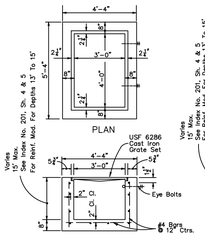


GRATE SEAT DETAIL

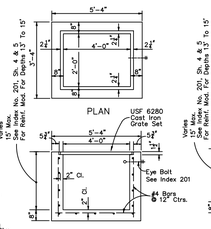
(FOR TRAFFIC BEARING GRATES)
NOT TO SCALE



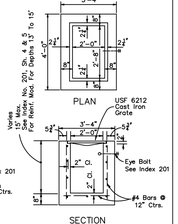
TYPE H (Modified)
Recommended Maximum Pipe Size:
3'-0" Wall-24" Pipe
6'-0" Wall-54" Pipe
2-24" Pipe



TYPE E (Modified)
Recommended Maximum Pipe Size:
3'-0" Wall-24" Pipe
4'-0" Wall-36" Pipe



TYPE D (Modified)
Recommended Maximum Pipe Size:
2'-0" Wall-18" Pipe
4'-0" Wall-36" Pipe

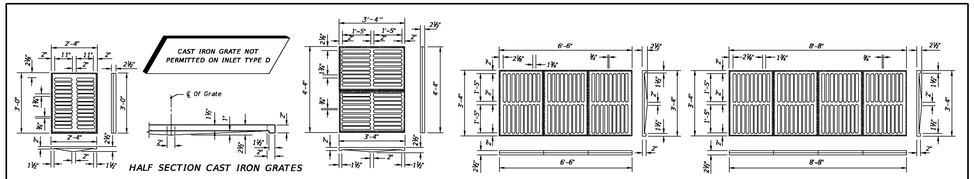


TYPE C (Modified)
Recommended Maximum Pipe Size:
2'-0" Wall-18" Pipe
2'-8" Wall-24" Pipe

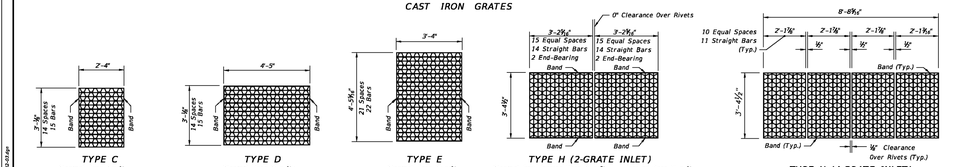
INLETS

GRATE TOP INLETS
TYPES C, D, E & H

DOT INDEX #232 (MODIFIED)



CAST IRON GRATES



TYPE C
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/2" x 3/16"
Bands 2" x 1/4"
Approx. Weight 104 Lbs.

TYPE D
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Bands 2" x 1/4"
Approx. Weight 190 Lbs.

TYPE E
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Bands 2" x 1/4"
Approx. Weight 215 Lbs.

TYPE H (2-GRATE INLET)
Straight End-Bearing Bars 2" x 3/16"
Straight Bearing Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Banding Bars 2" x 1/4"
Approx. Total Weight 310 Lbs.

TYPE H (4-GRATE INLET)
Straight End-Bearing Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Banding Bars 2" x 3/16"
Approx. Total Weight 388 Lbs.

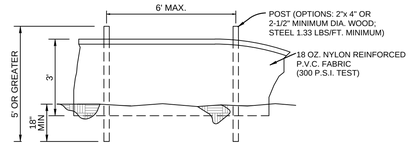
STEEL GRATES

NOTE: Steel Grates Are Required On Inlets With Traversable Slots And On Inlets where Bicycle Traffic Is Anticipated.

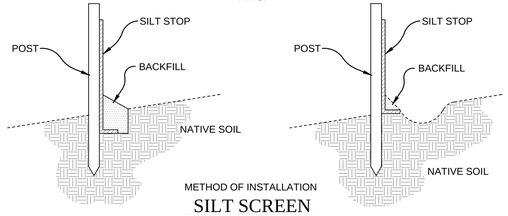
GENERAL NOTES

1. These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.
2. Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrians shall have traversable slots. The traverable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.
3. Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with traversable slots. Either cast iron or steel grates may be used on inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with non-traversable slots. Subject to the selection described above, when Alternate G grate is specified in the plans, either the steel grate, hot dip galvanized after fabrication, or the cast iron grate may be used, unless the plans stipulate the particular type.
4. Recommended maximum pipe sizes shown are for concrete pipe. Size for other types of pipe must be checked for fit.
5. All exposed edges and corners shall be 3/8" chamfer or tooled to 1/4" radius.
6. Concrete inlet pavement to be used on inlets without slots and inlets with non-traversable slots only when called for in the plans; but required on all traversable slot inlets. Cost to be included in contract unit price for inlets. Quantities shown are for information only.
7. Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see 'TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS'.
8. Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Performance Turf, SY.
9. For supplementary details see Index No. 201.
10. All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1 1/2" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO.	SHEET NO.
07/01/10	REVISION			232	3



STAKED TURBIDITY BARRIER
N.T.S.



METHOD OF INSTALLATION

SILT SCREEN
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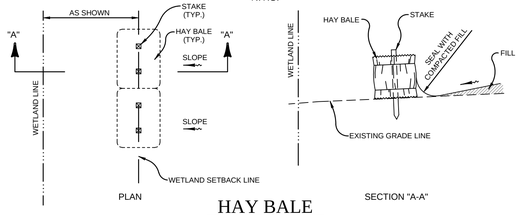

HAY BALE
N.T.S.

EROSION CONTROL DETAILS

NOTE: THE EROSION BARRIERS, AS SHOWN, ARE NOT TO BE CONSTRUED TO MEAN THAT THEY ARE ALL THAT MAY BE REQUIRED. THE CONTRACTOR IS TO TAKE WHATEVER MEASURES NECESSARY TO CONTROL EROSION THROUGHOUT THE PROJECT.

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STARKEY RANCH WELCOME CENTER

DRAINAGE DETAILS

WS-TSR, LLC

PREPARED FOR:

DATE	DESCRIPTION

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	DD
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-302

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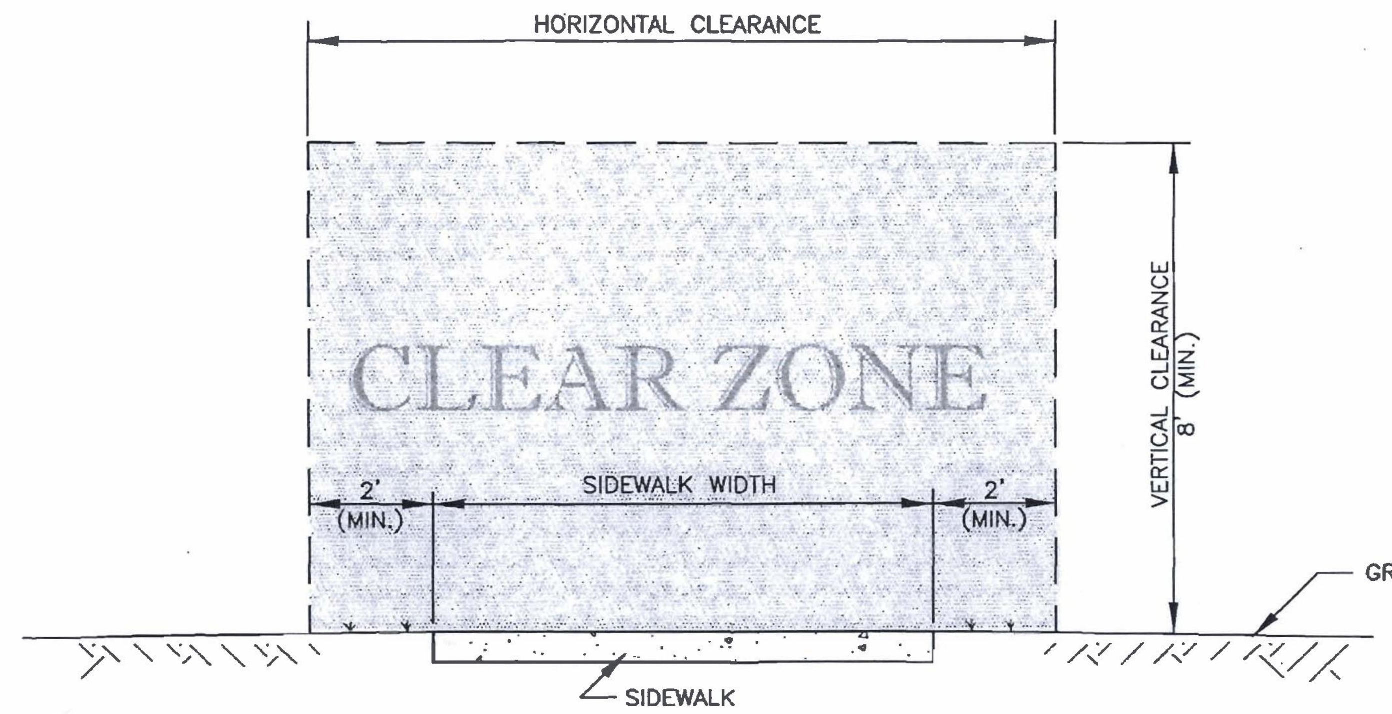
SIDEWALK CLEAR ZONE



SIDEWALK CLEAR ZONE SECTION
NTS

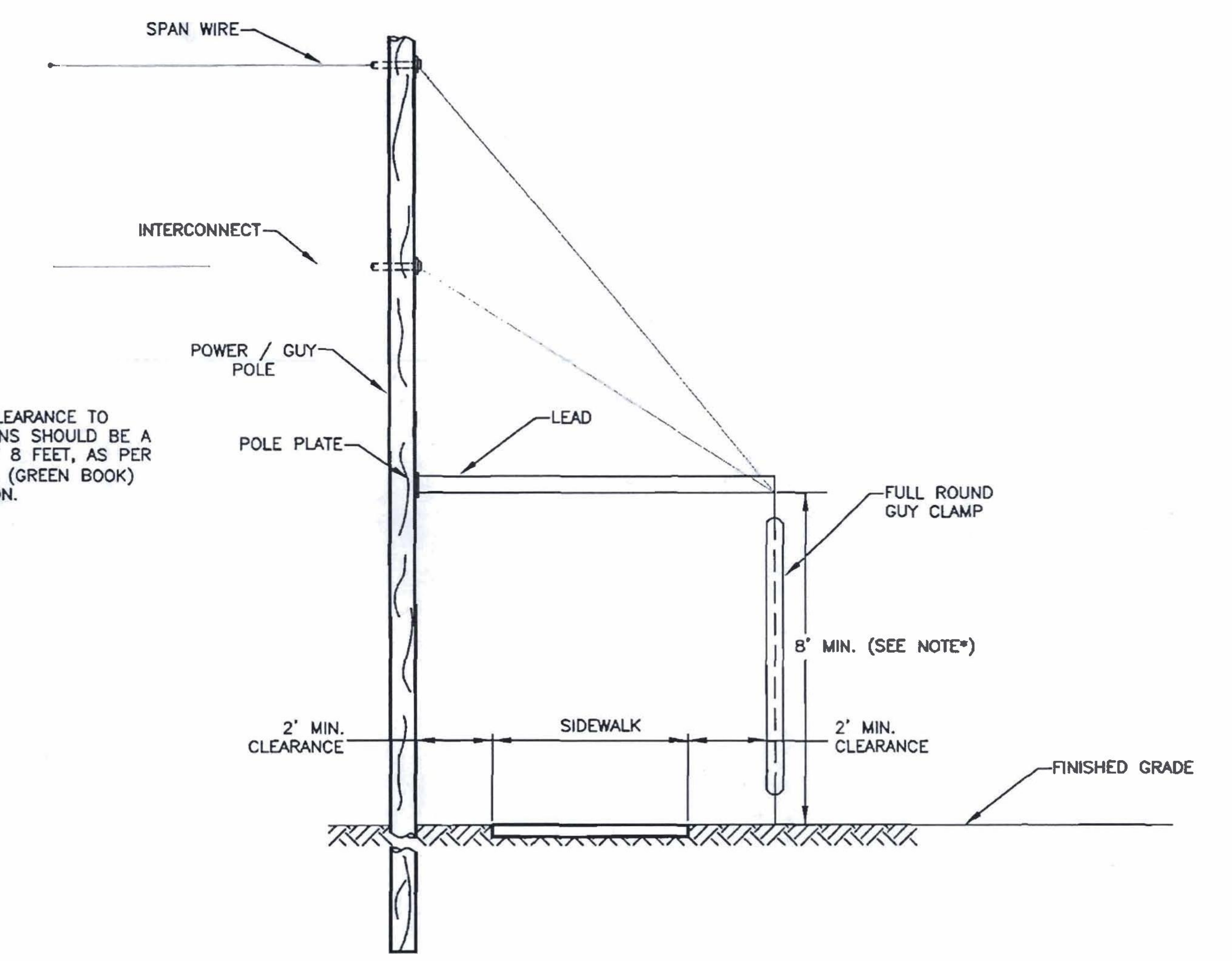
NOTES:

1. THIS CLEAR ZONE APPLIES TO THE SIDEWALK ONLY. IT IS NOT INTENDED FOR ROADWAY PLACEMENT SET BACKS.
2. THE SIDEWALK CLEAR ZONE SHALL BE AN OPEN WINDOW FREE OF OBSTACLES. THIS INCLUDES SHRUBS, TREES, FENCES, ABOVE GROUND UTILITIES, I.E., POWER POLES, STREET LIGHTS, GUY ANCHORS, FIRE HYDRANTS, BLOW-OFFS, MAIL BOXES, STREET SIGNS, UTILITY MARKERS, ETC.
3. THE SIDEWALK HORIZONTAL CLEAR ZONE CLEARANCE IS MEASURED FROM THE SIDEWALK EDGE AND SHALL BE A MINIMUM OF 2 FEET.
4. THE SIDEWALK VERTICAL CLEAR ZONE CLEARANCE IS MEASURED FROM THE FINISHED GROUND SURFACE AND SHALL BE A MINIMUM OF 8 FEET.

NOTE:
NO DEVIATIONS TO THIS DETAIL WILL BE PERMITTED UNLESS APPROVED BY THE COUNTY ENGINEER.
ANY PROPOSED ALTERATIONS SHALL BE CLEARLY IDENTIFIED AND HIGHLIGHTED ON DETAIL.

PASCO COUNTY ENGINEERING SERVICES	SIDEWALK CLEAR ZONE		
DESIGN STANDARDS	APPROVED BY	BCC APPROVAL / REVISED	DWG. NO.

SIDEWALK POWER POLE ANCHOR DETAIL



*NOTE:
VERTICAL CLEARANCE TO OBSTRUCTIONS SHOULD BE A MINIMUM OF 8 FEET, AS PER FDOT MUMS (GREEN BOOK) 2007 EDITION.

SIDEWALK POWER POLE ANCHOR DETAIL
NTS

NOTE:
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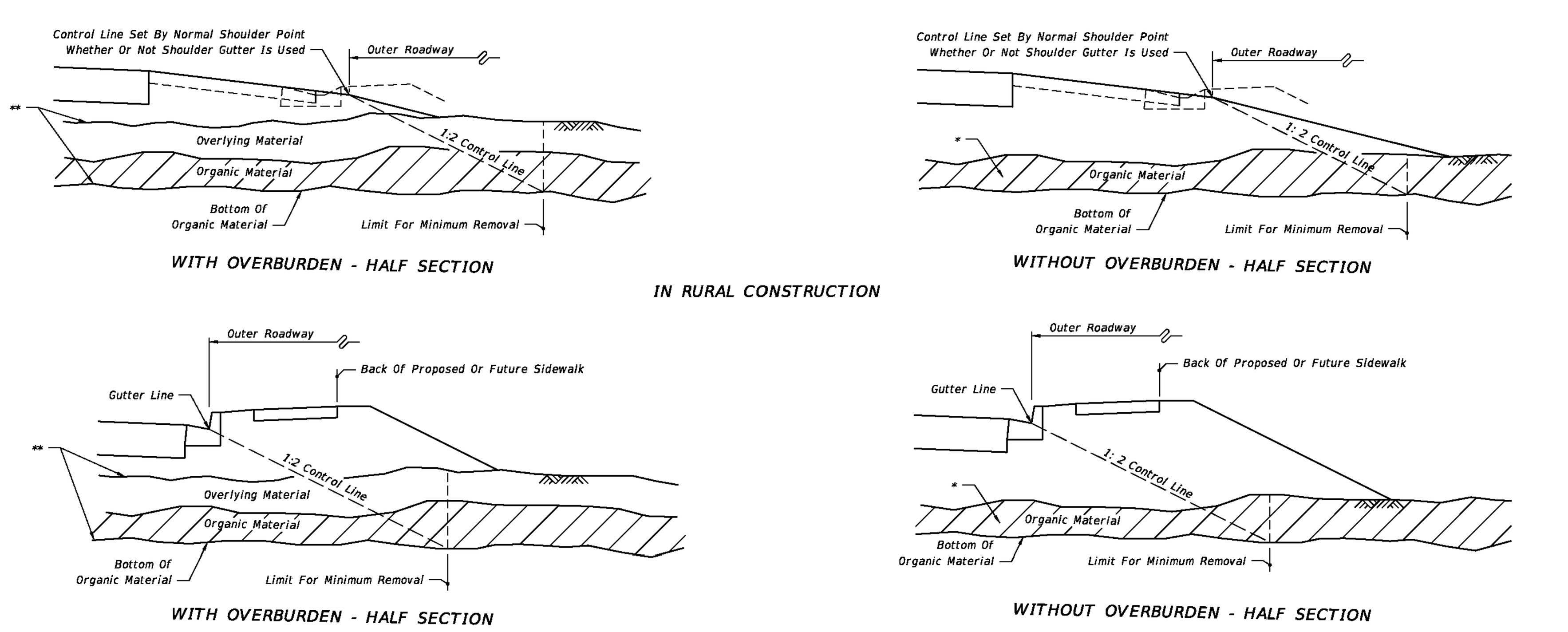
PASCO COUNTY ENGINEERING SERVICES	SIDEWALK POWER POLE ANCHOR DETAIL		
DESIGN STANDARDS	APPROVED BY	BCC APPROVAL / REVISED	DWG. NO.

09/09/08

REMOVAL OF ORGANIC MATERIAL



** Remove Overlying Material And Organic Material Within The Limits Shown And Backfill In Accordance With Index No. 505, Unless Otherwise Called For In The Plans Or Directed Otherwise By The District Geotechnical Engineer; The Limits Include Full Median Width When Applied To Divided Facilities With Median Widths Up To 64'; When Median Width Is Greater Than 64' And For Bifurcated Roadways The Organic Material Removal Limits Will Be Set By A 1:2 Control Line Complimentary To The Outer Roadway That Will Accommodate One Future Median Lane On Each Roadway Unless Specified Otherwise By The Plans.

IN URBAN CONSTRUCTION

* Remove Organic Material Within The Limits Shown And Backfill In Accordance With Index No. 505, Unless Otherwise Called For In The Plans Or Directed Otherwise By The District Geotechnical Engineer; The Limits Include Full Median Width When Applied To Divided Facilities With Median Widths Up To 64'; When Median Width Is Greater Than 64' And For Bifurcated Roadways The Organic Material Removal Limits Will Be Set By A 1:2 Control Line Complimentary To The Outer Roadway That Will Accommodate One Future Median Lane On Each Roadway Unless Specified Otherwise By The Plans.

GENERAL NOTES

1. All details shown on this index for removal of organic and plastic materials apply unless otherwise shown on the plans.
2. Utilization of excavated materials shall be in accordance with Index No. 505.
3. Where organic or plastic material is undercut, backfill shall be made of suitable material in accordance with Index No. 505, unless otherwise shown on the plans.
4. The term "Plastic Material" used in this index in conjunction with removal of plastic soil is as defined under soil classifications for Plastic (P) and High Plastic (H) on Index No. 505.
5. The term "Organic Material" as used on this index is defined as any soil which has an average organic content greater than five (5.0) percent, or an individual organic content test result which exceeds seven (7.0) percent. Organic material shall be removed as shown on this index and the plans unless directed otherwise by the District Geotechnical Engineer. Average organic content shall be determined from the test results from a minimum of three randomly selected samples from each stratum. Tests shall be performed in accordance with AASHTO T 267 on the portion of a sample passing the No. 4 sieve.
6. The normal depth of side ditches shall be 3.5' below the shoulder point except in special cases.
7. In municipal areas, where underdrain is to be constructed beneath the proposed pavement, the grade of the underdrain filter material will not extend above the bottom of the stabilized section of the subgrade. Gradation of the filter material shall conform to FDOT specifications. Minimum grade on underdrain pipe shall be 0.2%.
8. See Index No. 506 for miscellaneous earthwork details.

DESIGN NOTES

1. At locations where organic material or other soft soil deposits persists to such depth that removal is impractical, the construction of a geosynthetic foundation over those soils should be considered. The Engineer of Record should request guidance from the District Geotechnical Engineer and make a geosynthetic foundation design in accordance with Index No. 501 when pursuing geosynthetic alternates.
2. The designer shall take into consideration the expectancy of roadway widening to the outside, and where widening is anticipated specify in the plans the limits of removal of organic and plastic materials necessary to accommodate anticipated widening.

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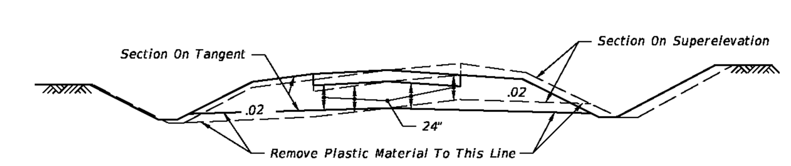
LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	REMOVAL OF ORGANIC AND PLASTIC MATERIAL	INDEX NO.	SHEET NO.
02					500	1

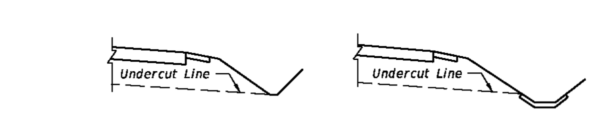
REMOVAL OF PLASTIC MATERIAL



TYPICAL CUT SECTION

Note: When this detail is applied to minor collectors and local facilities, the undercut may be reduced to 18".

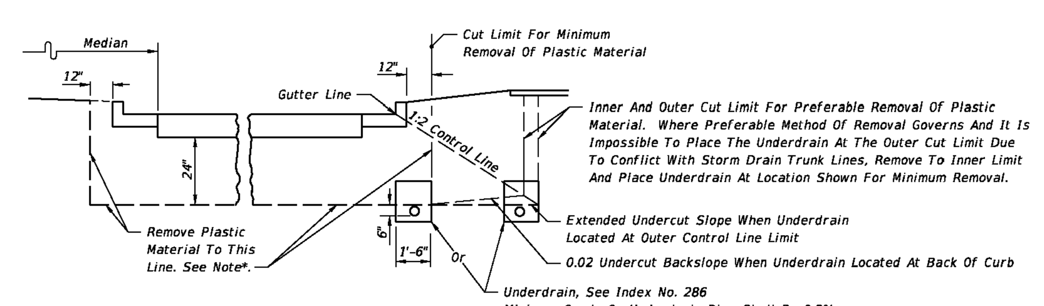
REMOVAL OF PLASTIC MATERIAL ON DIVIDED FREEWAYS, ARTERIALS AND MAJOR COLLECTORS HAVING FLUSH MEDIANS, AND ON UNDIVIDED ARTERIALS AND MAJOR COLLECTORS



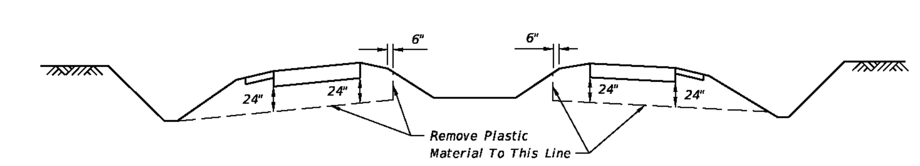
At locations where plastic material is being removed, the side ditches must be at least as deep as the undercut plane.

Where paved side ditches are used in areas of removal of plastic material, the top of the ditch pavement must be no higher than the undercut plane.

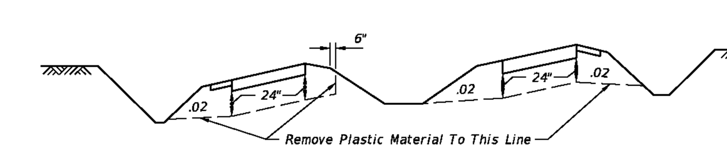
MISCELLANEOUS DETAILS



HALF SECTION



TYPICAL CUT SECTION ON TANGENT



TYPICAL CUT SECTION ON SUPERELEVATION

NOTES:
Refer to roadway cross sections to determine whether minimum or preferable removal is used.

* Where frequency of median breaks indicates that it is impractical to leave plastic material in the median, the designer may elect to indicate total removal of this material. If during construction it becomes apparent, due to normal required construction procedures, that it is impractical to leave the plastic material in the median, total removal of this material shall be approved by the Engineer.

REMOVAL OF PLASTIC MATERIAL AND LOCATION OF UNDERDRAIN IN URBAN CONSTRUCTION

REMOVAL OF PLASTIC MATERIAL ON INTERSTATE FACILITIES, FREEWAYS, DIVIDED ARTERIALS AND MAJOR COLLECTORS HAVING DEPRESSED MEDIANS

REMOVAL OF PLASTIC MATERIAL
Note: For GENERAL NOTES see Sheet 1.

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LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	REMOVAL OF ORGANIC AND PLASTIC MATERIAL	INDEX NO.	SHEET NO.
07/01/09					500	2

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STARKEY RANCH WELCOME CENTER

DRAINAGE DETAILS

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	DD
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-303

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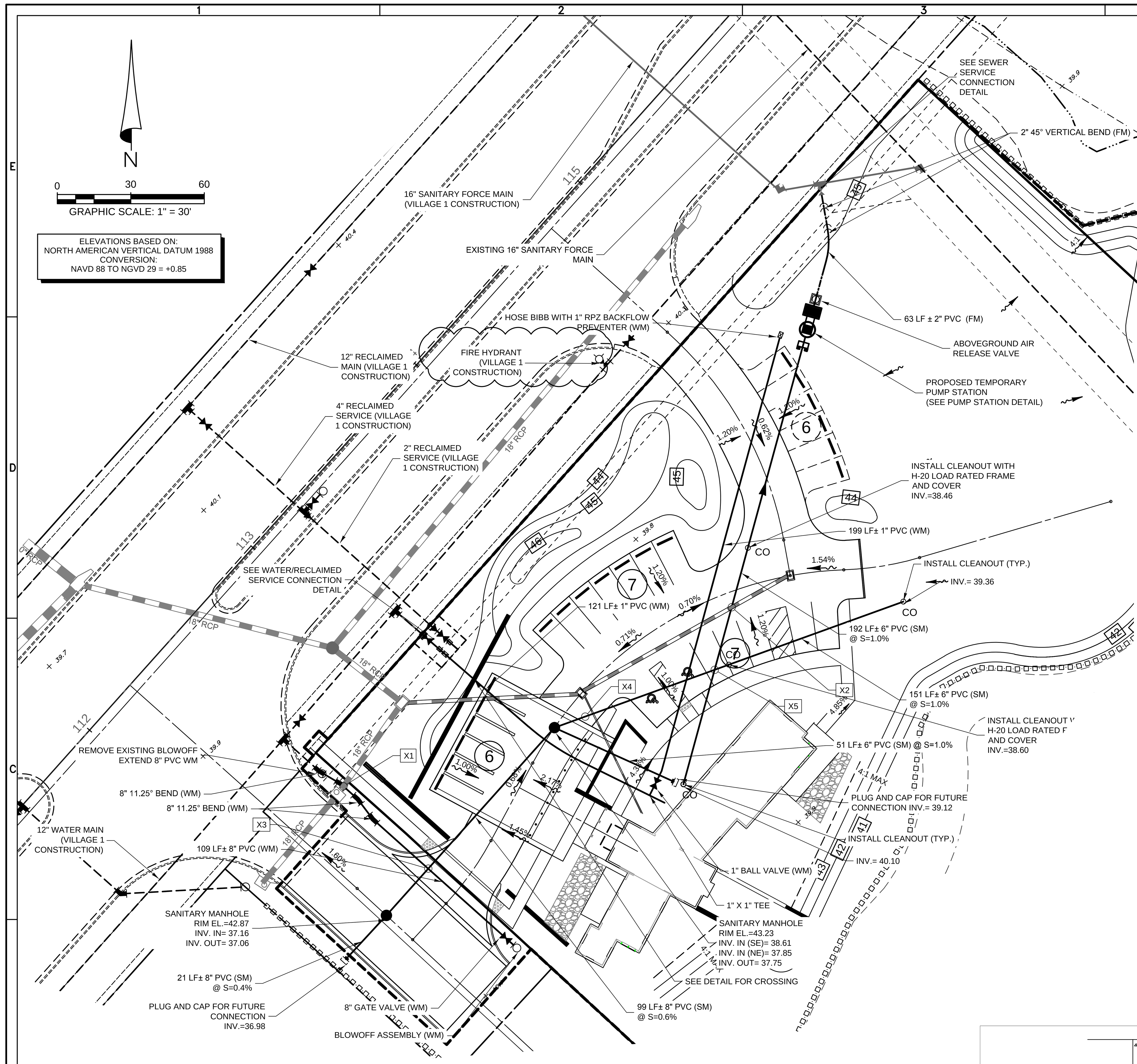
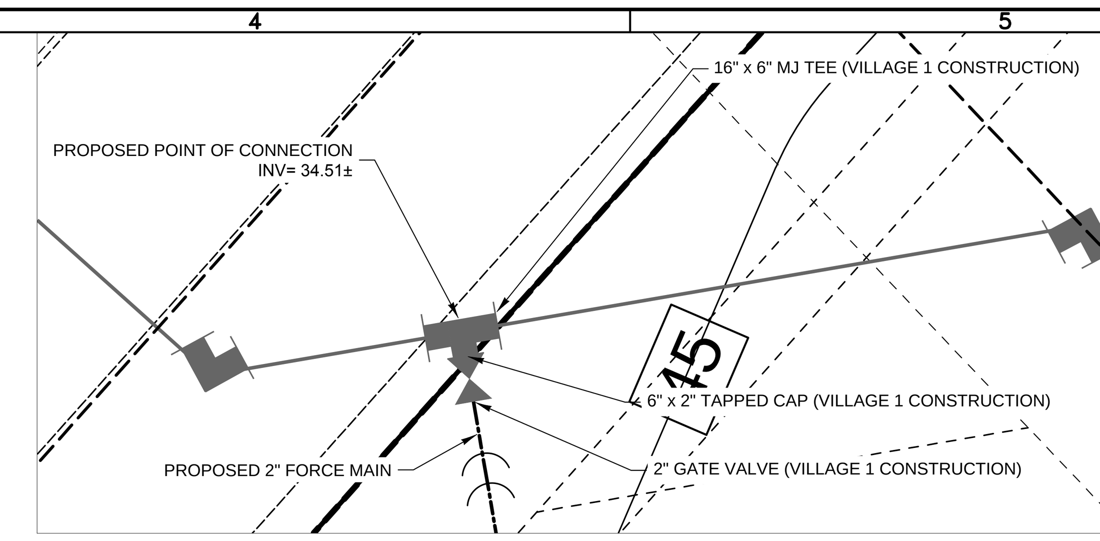
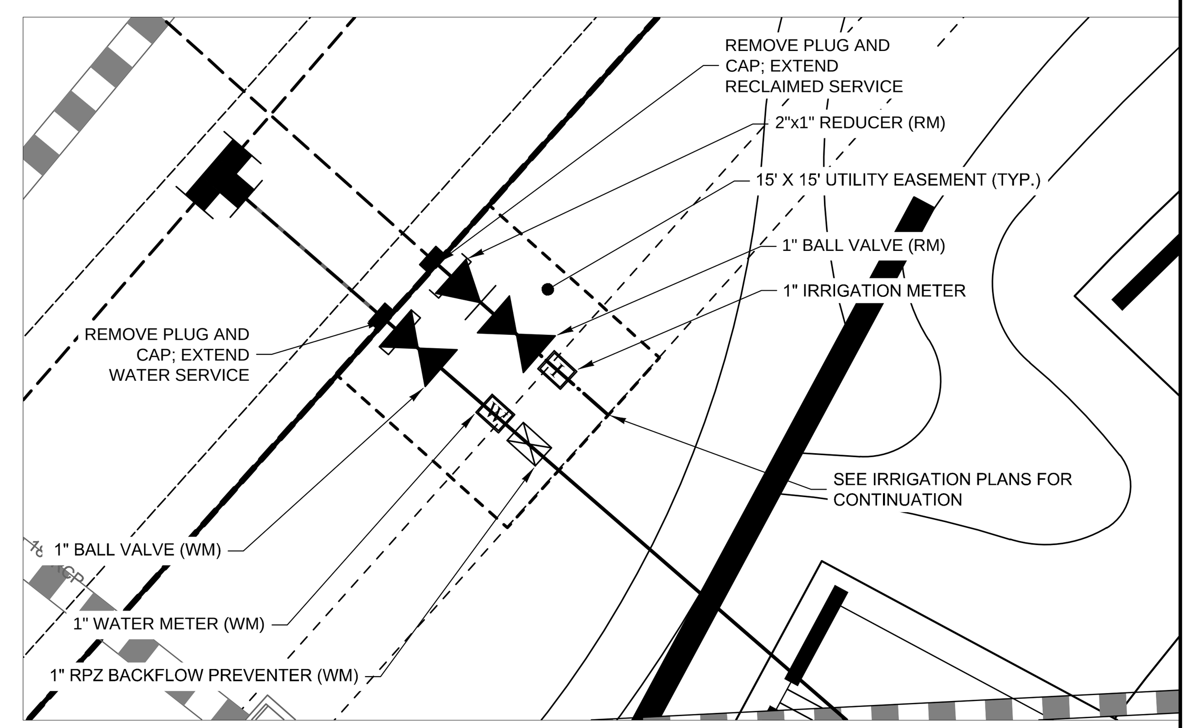




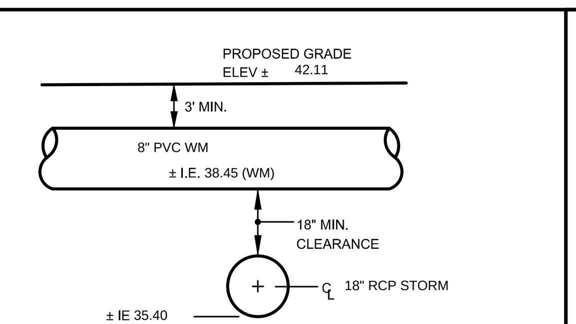
PROPOSED SEWER CONNECTION DETAIL

SCALE: 1"=10'



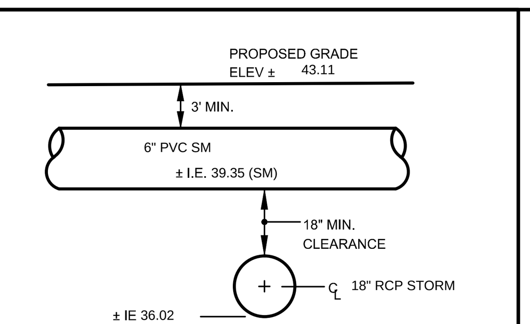
PROPOSED WATER/RECLAIMED CONNECTION DETAIL

SCALE: 1"=10'



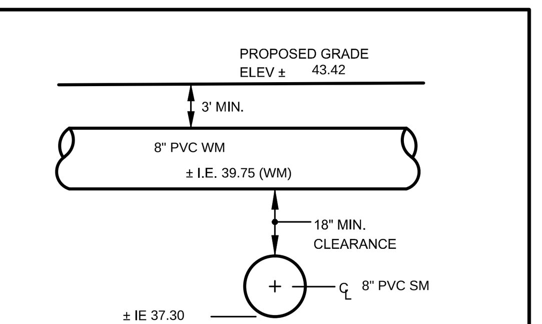
X1 **CROSSING DETAIL**

N.T.S.



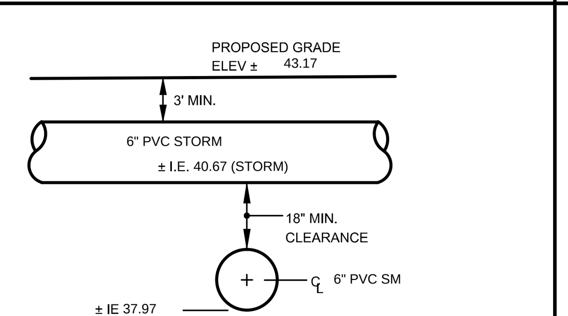
X2 **CROSSING DETAIL**

N.T.S.



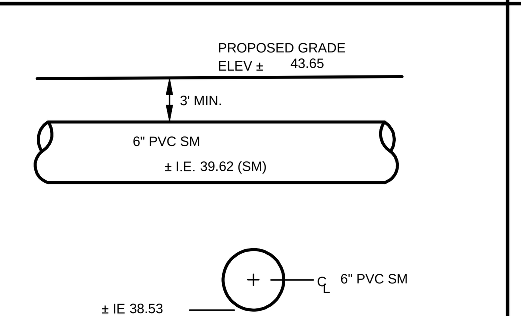
X3 **CROSSING DETAIL**

N.T.S.



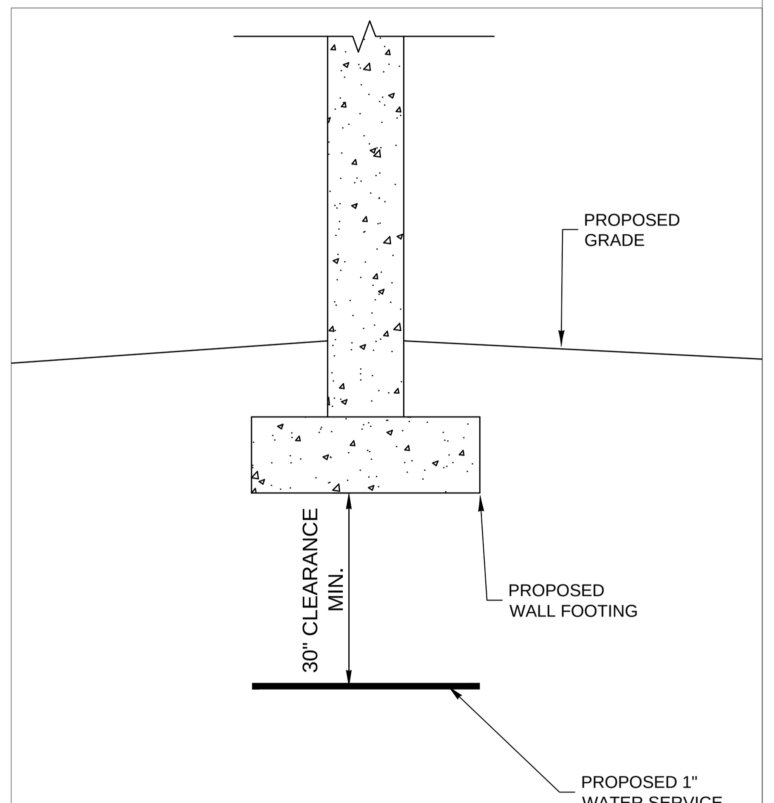
X4 **CROSSING DETAIL**

N.T.S.



X5 **CROSSING DETAIL**

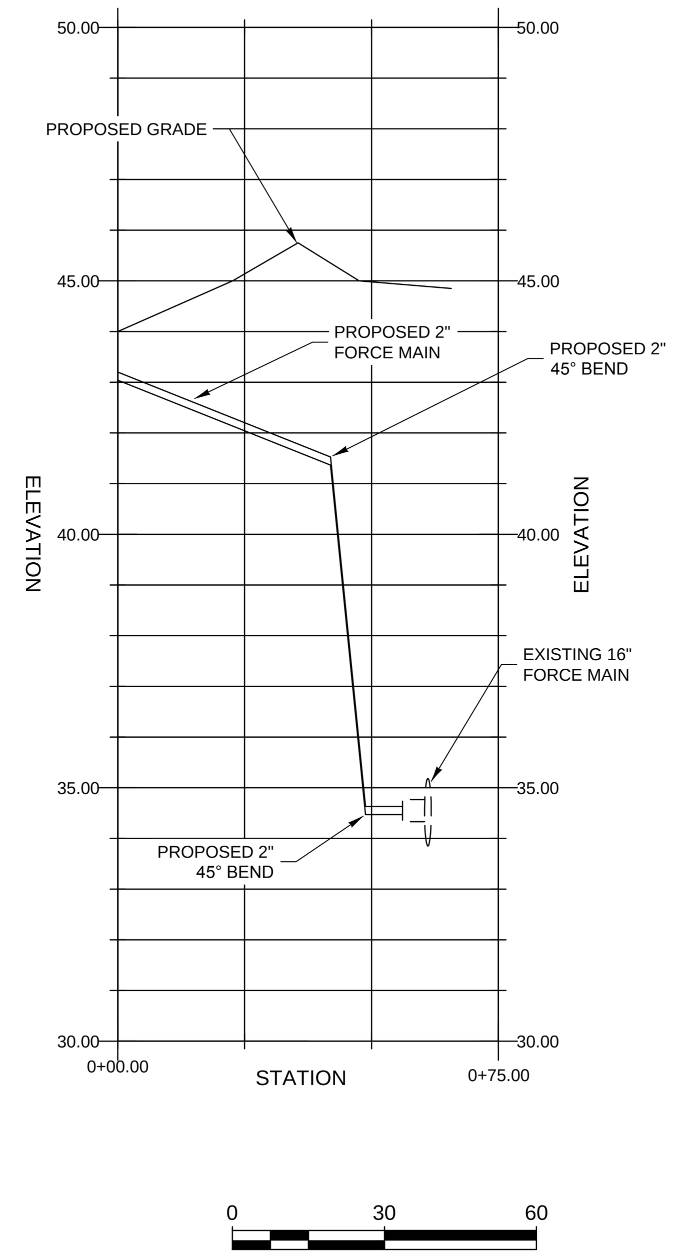
N.T.S.



WATER MAIN/ WALL CROSSING DETAIL

SCALE: NTS

SANITARY SEWER FORCE MAIN PROFILE



HORIZONTAL SCALE: 1" = 30'

VERTICAL SCALE: 1" = 3'

WATER, SEWER & RECLAIMED WATER CONSTRUCTION NOTES:

1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN FROM THE ENGINEER OR OWNER A COPY OF ALL PERTINENT PERMITS RELATED TO THIS PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ALL CONSTRUCTION ACTIVITIES ARE IN COMPLIANCE WITH THE CONDITIONS OF ALL PERMITS AND APPROVALS.
2. SOLID SOD, ALL AREAS IN EXISTING RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION.
3. CONTRACTOR IS TO COORDINATE ALL WORK WITHIN, BUT NOT LIMITED TO, PASCO COUNTY RIGHTS-OF-WAY WITH UTILITY COMPANIES IN ORDER TO PREVENT DAMAGE TO UTILITY LINES AND THE MAKING OF ADJUSTMENTS TO SAME, IF REQUIRED.
4. ALL UTILITY MATERIALS AND WORKMANSHIP MUST COMPLY WITH STANDARDS FOR DESIGN AND CONSTRUCTION OF WATER, WASTEWATER AND RECLAIMED WATER FACILITIES SPECS., JUNE 1995 EDITION.
5. FIRE HYDRANT, GATE VALVE AND BLOW-OFF VALVE ASSEMBLIES SHALL CONSIST OF ALL PIPE, VALVES, TEES, FITTINGS, AND ANY AND ALL OTHER APPURTENANCES COMPRISING A COMPLETE, WORKING UNIT.
6. ALL 4"-12" PVC WATER MAIN PIPE SHALL CONFORM TO THE REQUIREMENTS FOUND IN AWWA STANDARD C-900, LATEST EDITION AT THE TIME OF PLAN APPROVAL. ALL 16"-24" WATER MAIN SHALL BE C-905 DR 25 PVC. ALL SERVICE PIPE LESS THAN 4" IN DIAMETER SHALL BE PVC PRESSURE PIPE; PRESSURE RATE 200; DR 21 PER ASTM STANDARD D-2241. WATER MAINS SMALLER THAN 2" IN DIAMETER SHALL BE CLASS 1120 OR 1220; SCHEDULE 80 AND MEET THE REQUIREMENTS OF ASTM D-1785.
7. ALL WATER MAINS SHALL BE DEFLECTED VERTICALLY WHERE CROSSING STORM SEWER PIPE TO OBTAIN A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE STORM SEWER. JOINTS SHALL BE LOCATED SUCH THAT THE DISTANCE FROM THE STORM SEWER AND WATER MAIN JOINT IS AS FAR AS PRACTICAL.
8. WATER MAINS SHOULD BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED STORM SEWER.
9. AT NO TIME SHOULD VERTICAL CLEARANCE BETWEEN FORCE MAIN OR GRAVITY SEWER AND WATER MAIN BE LESS THAN 18" AT CROSSING OF SAME.
10. AT NO TIME SHOULD HORIZONTAL CLEARANCE BETWEEN FORCE MAIN OR GRAVITY SEWER AND WATER MAIN BE LESS THAN 10' WHEN SAME ARE PARALLELING EACH OTHER.
11. ADJUSTING MANHOLE TOPS TO MATCH GRADE AND SLOPE OF THE FINISH PAVING SHALL BE INCLUDED IN THE RESPECTIVE CONTRACT UNIT PRICE FOR MANHOLES, PAYMENT OF WHICH WILL CONSTITUTE FULL COMPENSATION FOR THE CONSTRUCTION AND COMPLETION OF THE MANHOLE, AND NO ADDITIONAL PAYMENT WILL BE ALLOWED OR MADE FOR ADJUSTING MANHOLE TOPS.
12. THE LOCATIONS AND ELEVATION OF ALL SERVICE LINES ARE TO BE DETERMINED IN THE FIELD BY OWNER AND/OR CONTRACTOR PRIOR TO CONSTRUCTION OF SAME.
13. BENDS SHALL BE INSTALLED IN FORCE MAIN OR WATER MAIN TO AVOID UNFORESEEN CONFLICTS IN EXISTING OR PROPOSED STRUCTURES.
14. THE JOINT DEFLECTION METHOD SHALL BE USED WHERE PRACTICAL IN LIEU OF INSTALLING BENDS.
15. CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS OF EXISTING WATER AND SEWER LINES PRIOR TO BEGINNING CONSTRUCTION.
16. THE EXISTING UNDERGROUND UTILITY LINES SHOWN HEREON WERE TAKEN FROM DOCUMENTS FURNISHED BY OTHERS AND NOT FIELD VERIFIED, THEREFORE, THE ENGINEER CANNOT GUARANTEE THE ACCURACY OF SAME NOR THAT ALL ARE SHOWN. THE CONTRACTOR SHALL EXPOSE ALL UNDERGROUND UTILITY LINES IN COORDINATION WITH THE OWNERS TO HIS SATISFACTION AND MAKE ADJUSTMENTS TO SAME IN THE EVENT THERE ARE CONFLICTS WITH NEW CONSTRUCTION.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL ROAD CROSSING OR UTILITY PERMITS.
18. ALL 8" SANITARY SEWER PIPE SHALL BE CONSTRUCTED AT A 0.40% MINIMUM SLOPE UNLESS OTHERWISE NOTED.
19. ALL VALVE BOX ASSEMBLIES LOCATED WITHIN ROADWAYS OR PARKING AREAS SHALL BE PROTECTED FROM TRUCK TRAFFIC BY USE OF 6" THICK REINFORCED CONCRETE PADS POURED AROUND VALVE BOXES (SEE DETAIL).
20. ALL SUBSURFACE CONSTRUCTION SHALL COMPLY WITH THE "TRENCH SAFETY ACT." THE CONTRACTOR SHALL INSURE THAT THE METHOD OF TRENCH PROTECTION AND CONSTRUCTION IS IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
21. CONNECTIONS INTO EXISTING COUNTY-OWNED SYSTEMS SHALL BE VIA WET TAP. WET TAPS SHALL BE PERFORMED BY THE PASCO COUNTY UTILITIES SERVICES BRANCH AT THE DEVELOPER'S EXPENSE. MATERIAL FOR WET TAPS LARGER THAN 2" SHALL BE PROVIDED AND INSTALLED BY THE PROJECT CONTRACTOR. EXCAVATION, BACKFILL AND SURFACE RESTORATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
22. GATE VALVES INSTALLED FOR PHASING SHALL BE RESTRAINED PER CURRENT PASCO COUNTY STANDARDS.
23. OFF-ROAD UTILITY EASEMENTS SHALL BE "STABILIZED" FOR ACCESS BY MAINTENANCE VEHICLES.
24. STUB-OUT LINES ON THE WATER MAIN AND FORCE MAIN SHALL HAVE RESTRAINED JOINTS FROM THE MAIN LINE TO THE STUB-OUT.
25. ALL PVC PRESSURE PIPE SHALL HAVE A MINIMUM 36" COVER.
26. SANITARY SEWERS, FORCE AND RECLAIMED MAINS AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS. SANITARY SEWERS, FORCE AND RECLAIMED MAINS AND STORM SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE.
27. WHEN SANITARY SEWERS, FORCE MAINS AND STORM SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. (DIP IS NOT REQUIRED FOR STORM SEWERS IF IT IS NOT AVAILABLE IN THE SIZE PROPOSED.) SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE LEAK FREE AND MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT THE CROSSING.
28. WHERE THERE IS NO ALTERNATIVE TO SEWER AND RECLAIMED PIPES CROSSING OVER A WATER MAIN, THE CRITERIA FOR MINIMUM SEPARATION OF 18 INCHES BETWEEN LINES AND 10 FEET BETWEEN JOINTS SHALL BE REQUIRED.
29. ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER AND RECLAIMED PIPES JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING).
30. WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP AND THE CROSSING SHALL BE ARRANGED TO MEET THE REQUIREMENTS ABOVE.
31. A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED IN PARALLEL INSTALLATIONS BETWEEN ANY TYPE OF SEWER (INCLUDING DRAINAGE INLETS) AND WATER MAIN WHENEVER POSSIBLE. A MINIMUM 5-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED IN PARALLEL INSTALLATION BETWEEN RECLAIMED WATER MAINS AND WATER MAINS, AND BETWEEN RECLAIMED WATER MAINS AND SANITARY SEWERS WHENEVER POSSIBLE.
32. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION BETWEEN ANY TYPE OF PARALLEL SEWER AND WATER MAIN, OR A 5-FOOT SEPARATION BETWEEN RECLAIMED MAIN AND WATER MAIN, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER, RECLAIMED MAIN, OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
33. WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES OR A HORIZONTAL DISTANCE OF 10 FEET IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER, RECLAIMED MAIN OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (IF AVAILABLE IN THE SIZE PROPOSED) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD BE ABOVE THE SEWER, RECLAIMED MAIN, OR FORCE MAIN. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER, RECLAIMED MAIN, OR FORCE MAIN (STAGGERED JOINTS).
34. IN CONSIDERATION OF PASCO COUNTY'S AGREEMENT TO PROVIDE POTABLE WATER AND/OR RECLAIMED WATER TO THE SUBJECT PROPERTY, DEVELOPER/OWNER, AND ITS SUCCESSORS ASSIGNS, AGREE TO THE FOLLOWING:
    a. IN THE EVENT OF PRODUCTION FAILURE OR SHORTFALL BY TAMPA BAY WATER, AS SET FORTH IN SECTION 3.19 OF THE INTERLOCAL AGREEMENT CREATING TAMPA BAY WATER, DEVELOPER/OWNER SHALL TRANSFER TO PASCO COUNTY ANY AND ALL WATER USE PERMITS OR WATER USE RIGHTS THE DEVELOPER/OWNER MAY HAVE TO USE OR CONSUME SURFACE OR GROUND WATER WITHIN PASCO COUNTY.
    b. PRIOR TO DEVELOPER/OWNER SELLING WATER OR WATER USE PERMITS OR WATER USE RIGHTS, DEVELOPER/OWNER SHALL NOTIFY PASCO COUNTY, AND PASCO COUNTY SHALL HAVE A RIGHT OF FIRST REFUSAL TO PURCHASE SUCH WATER OR WATER USE PERMITS OR WATER USE RIGHTS.
35. CONTRACTOR'S RESPONSIBILITIES REGARDING WET TAPS TWO INCHES AND LARGER SHALL BE AS FOLLOWS:
    a. 2" ONLY- THIS EXCAVATED TRENCH MUST BE DRY OR THE TRENCH WILL REQUIRE ROCK AND A PUMP TO BE IN PLACE. THE MINIMUM DISTANCE FROM THE FACE OF THE VALVE TO THE WALL OF THE TRENCH IS TO BE SIX FEET.
    b. 3" AND LARGER- THE CONTRACTOR WILL SUPPLY A TAPPING SADDLE BEING EPOXY COATED, A TAPPING VALVE WITH MECHANICAL JOINT AND THE EQUIPMENT TO PROVIDE, AND CONDUCT A PRESSURE TEST. COUNTY PERSONNEL WILL WITNESS THE PRESSURE TEST WHICH MUST BE AT 150 PSI FOR DURATION OF THIRTY MINUTES.
    c. THE CONTRACTOR IS RESPONSIBLE FOR THE EXCAVATION BEFORE ANY COUNTY PERSONNEL WILL ENTER AN EXCAVATED AREA. IF THE TRENCH IS FOUR FEET IN DEPTH OR DEEPER, IT WILL REQUIRE A TRENCH BOX OR SLOPING, AND A LADDER ACCORDING TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.
    d. THE TAPPING VALVE WILL REQUIRE A BLOCKING DEVICE MADE OF SUITABLE MATERIAL OR DEVICE. THIS BLOCKING DEVICE OR MATERIAL WILL BE PLACED UNDER THE VALVE AND REMAIN IN PLACE UNTIL THE TAP MACHINE IS REMOVED AND THE TAP IS COMPLETED.
    e. NOTE: IF THE CONTRACTOR HAS NOT FULFILLED HIS RESPONSIBILITIES, AS STATED ABOVE, PRIOR TO THE ARRIVAL OF PASCO COUNTY UTILITIES OPERATIONS AND MAINTENANCE TAPPING CREW, THERE WILL BE AN ADDITIONAL CHARGE OF $95.00.
    f. IF YOU HAVE ANY QUESTIONS REGARDING THIS INFORMATION, CONTACT NELSON D. HOLT, FIELD SUPERVISOR, UTILITIES SERVICES BRANCH, AT (727) 847-8145, OR E-MAIL NHOLT@PASCOCOUNTYFL.NET.

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Landscape Architecture Certificate of Authorization No. LC26000405
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STARKEY RANCH WELCOME CENTER

WATER & SANITARY SEWER PLAN

PREPARED FOR: WS-TSR, LLC

	DATE	DESCRIPTION
6	12/17/2014	FINAL SUBMITTAL
5	11/10/2014	SITE PLAN MODIFICATION
4	07/07/2014	RECLAIMED RPZ REMOVAL
3	4/11/2014	UTILITY COMMENTS
2	4/11/2014	COUNTY COMMENTS
1	03/27/2014	UTILITY COMMENT REVISIONS
	02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	WS
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:______________
REGISTRATION NO. 52717

C-400

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WASTEWATER PUMPING STATION DESIGN PARAMETERS

STARKEY RANCH WELCOME CENTER

DESIGN CAPACITY:

A. Average Daily Flow (ADF):

0	x 200 GPD/UNIT (Single Family Units)=	0.0	GPD
0	x 170 GPD/UNIT (Multi Family Units)=	0.0	GPD
3,555	x 0.15 GPD/S.F. (OFFICE/COMMERCIAL)=	533	GPD
	ADF Total=	533	GPD

B. Peak Influent Rate:

Peak Factor 3.80 (Per Utility Manual, Appendix 5)

Peak Flow = (ADF x Peak Factor) / 1440 = 1.4 GPM

C. Design Minimum Flow:

(ADF x 0.20) / 1440= 0.1 GPM

D. Design Pump Capacity (Minimum Required): 20.0 GPM

E. Velocity in Force Main at Max. Pumping Rate: 2.00 fps

WETWELL DESIGN (DUPLEX SYSTEM)

A. Design Criteria:

1. Maximum Pump Motor Cycle Rate = 6 Starts Per Hour
2. Maximum Detention Time at Minimum Flow = 30 Minutes

B. Pump Control Level Settings:

1. Pump Cycling Rates are at a minimum when inflow equals one-half the design pumping rate of 20.0 gpm.
2. Wetwell volume required between Lead Pump Start and Pump Shut Off Level = 0.25 x Cycle Period x 1/2 Pumping Rate= 25.00 Gallons
3. Wetwell Diameter (D)= 4 feet
   Wetwell Volume = 94.00 gals / ft. depth
4. Wetwell level change between pump stop and lead pump start= 0.27 feet
   Design For: 0.30 feet (2.00' max)
5. Control Elevations:

Top of Slab:	45.00
Influent Invert:	38.18
High Water Alarm:	37.48
Lag Pump On:	36.98
Lead Pump On:	36.48
All Pumps Off*:	36.18
Bottom**:	33.20

** Pump Station depth to not exceed 25 feet

Pump Height= 2.73 feet

PUMP SPECIFICATIONS

PUMPS REQUIRED	2
MANUFACTURER	EBARA
MODEL NUMBER	DGFU
PUMP SIZE	2"
CAPACITY EACH (GPM)	20
TOTAL HEAD (FEET)	113
IMPELLER DIAMETER	146 mm(5-3/4")
MOTOR HP REQUIRED	5
SPEED (RPM)	3600
ELECTRICAL	208/230V; 3 PHASE

ELEVATIONS:

ALARM	37.48
BOTH PUMPS ON	36.98
LEAD PUMP ON	36.48
BOTH PUMPS OFF	36.18

SYSTEM CURVE CALCULATIONS

1. Pump Station Piping

	Size (in)	Quantity	Friction Loss (ea.)	Total
Tee	2	0		
22.5° Bend	2	0		
45° Bend	2	0		
90° Bend	2	0		
Check Valve	2	0		
Gate Valve	2	0		
			Total=	0.00
			Pipe Length=	100.00
			Total Equivelent Length=	100.00

Design For: 100.0

2. Force Main Piping

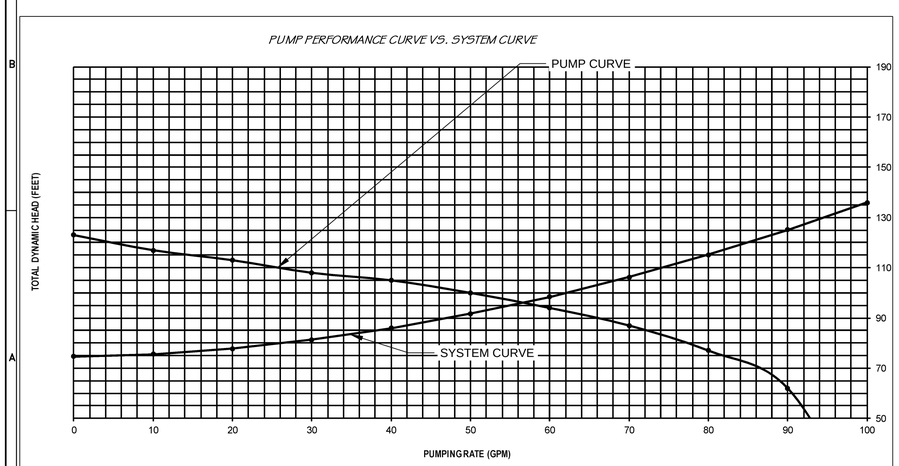
	Size (in)	Quantity	Friction Loss (ea.)	Total
Tee	2	0		
22.5° Bend	2	0		
45° Bend	2	2	2.5	5
90° Bend	2	0		
Cross	2	0		
Gate Valve	2	0		
			Total=	5.00
			Pipe Length=	75.00
			Total Equivelent Length=	80.00

Design For: 100.0

SYSTEM HEAD COMPUTATION- TOTAL LOSSES IN FEET

FLOW (GPM)

Item	5	10	15	20	25	30	35	40	45	50	55
Pump Station Piping (Equivelent Length) 100 LF 2 " DIP	0.14	0.50	1.06	1.81	2.74	3.84	5.11	6.54	8.14	9.89	11.80
Force Main Piping (Equivelent Length) 100 LF 2 " PVC	0.10	0.36	0.76	1.29	1.95	2.74	3.65	4.67	5.81	7.06	8.42
Static Head	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40
Low (Design Pressure @ POC)	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30
High	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30	64.30
Low System Losses (System Curve)	74.94	75.56	76.53	77.81	79.40	81.28	83.46	85.92	88.65	91.65	94.93
High System Losses	74.94	75.56	76.53	77.81	79.40	81.28	83.46	85.92	88.65	91.65	94.93



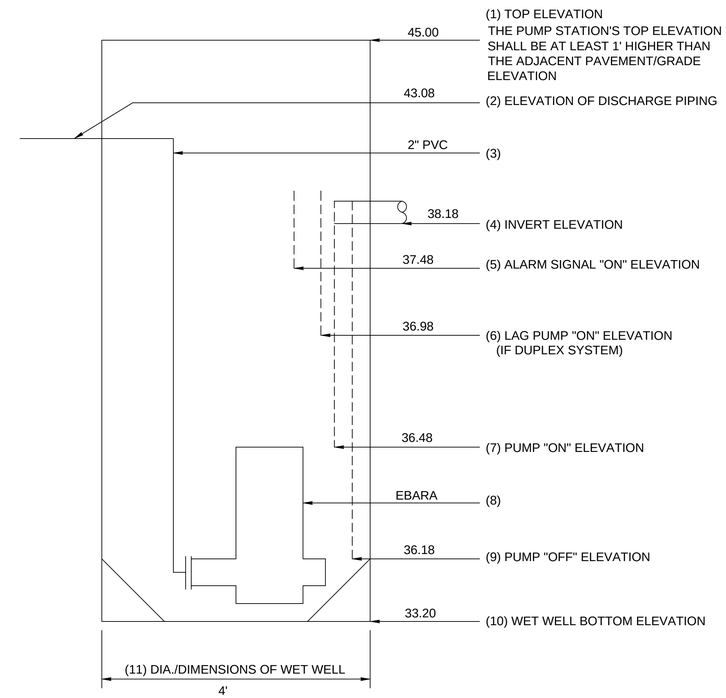
PLANS FOR PRIVATELY-OWNED PUMP STATIONS MUST PROVIDE THE FOLLOWING INFORMATION AS A MINIMUM REQUIREMENT

A. SITE PLAN SHOWING PUMP STATION LOCATION AND POINT OF CONNECTION

B. PLAN AND PROFILE OF PUMP STATION

C. COPY OF MANUFACTURERS PUMP PERFORMANCE CURVES

D. PROVIDE DATA FOR ITEMS (1) THROUGH (11) AS SHOWN BELOW



NOTE:

SYSTEM HEAD VERSUS PUMP CAPACITY CURVES ARE TO BE SHOWN TO DETERMINE THE SYSTEM OPERATING CAPABILITY AT THE FOLLOWING CONDITIONS:

A. CONVENTIONAL PUMPING STATION - FORCE MAIN (NON-MANIFOLDED)

1. ONE PUMP RUNNING, IF DUPLEX STATION
2. ONE PUMP AND TWO PUMPS RUNNING, IF TRIPLEX STATION, ETC.
3. IF FORCE MAIN PROFILE RESULTS IN SIPHON, CURVES SHALL SHOW OPERATION AT START-UP (TO HIGH POINT ONLY) AS WELL AS FULL FLOW CONDITIONS.

B. MANIFOLD PUMPING STATIONS

ALL CONDITIONS OUTLINED UNDER (A) ABOVE, AND THE FOLLOWING ADDITIONAL CONDITIONS:

1. SIMULTANEOUS OPERATION OF ALL PUMPING STATIONS ON SYSTEM.
2. OPERATION WHILE ALL REMAINING STATIONS ARE OFF.

C. VARIABLE SPEED PUMPING STATIONS

ALL APPLICABLE CONDITIONS UNDER (A) AND (B) ABOVE AND IN ADDITION:

1. OPERATION POINT, INCLUDING SPEED, AT PEAK, AVERAGE, AND MINIMUM FLOWS.

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STARKEY RANCH WELCOME CENTER

PUMP STATION PLAN

WS-TSR, LLC

PREPARED FOR

DATE	DESCRIPTION
03/27/2014	UTILITY COMMENT REVISIONS
02/26/2014	REVIEW SUBMITTAL

DATE	DESCRIPTION

PROJECT NO: TSR-SR-1018
FILE: PS
DESIGN BY: BUDEN
DRAWN BY: BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

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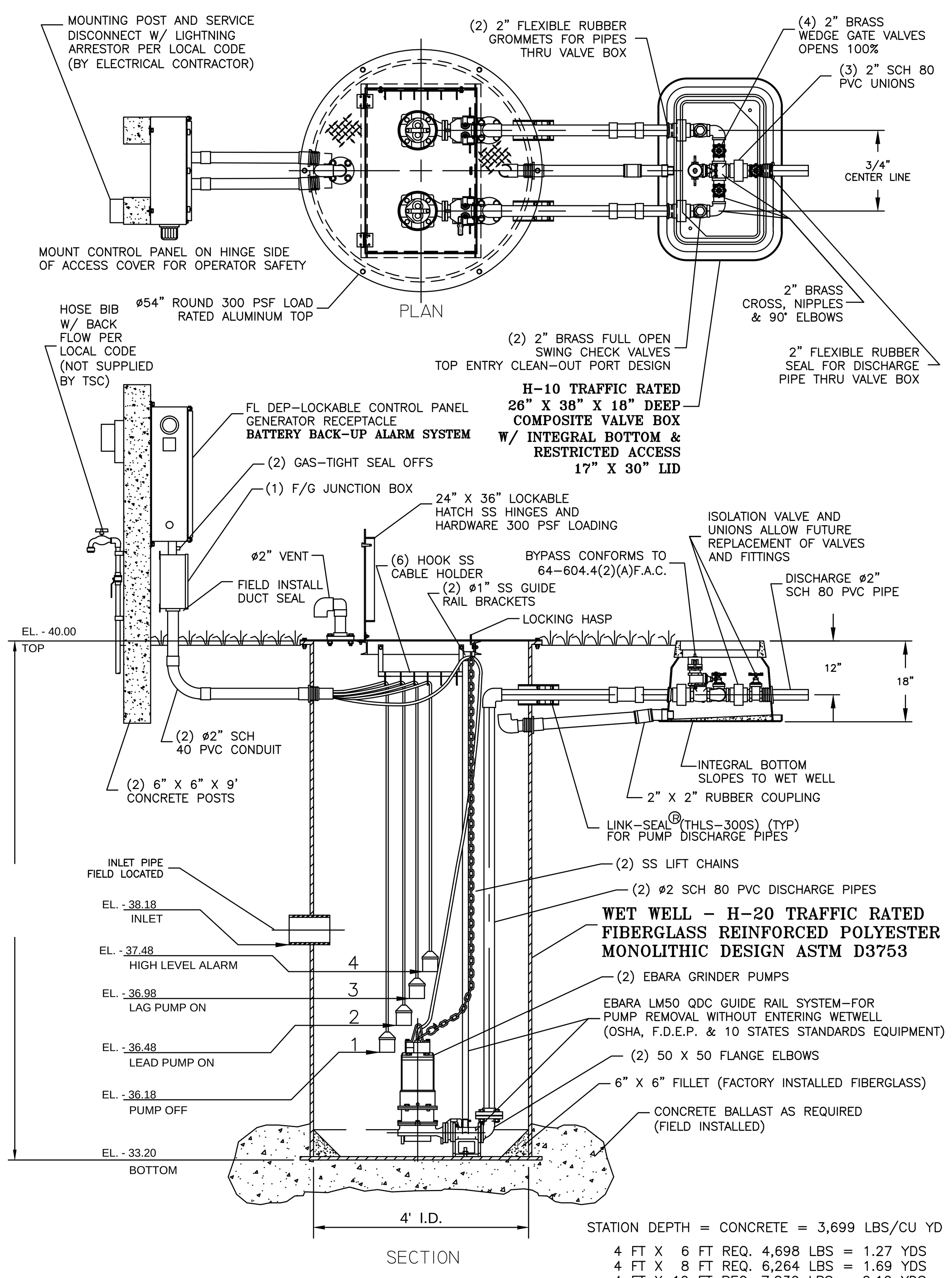


STATION DEPTH = CONCRETE = 3,699 LBS/CU YD

4 FT X 6 FT REQ. 4,698 LBS = 1.27 YDS
4 FT X 8 FT REQ. 6,264 LBS = 1.69 YDS
4 FT X 10 FT REQ. 7,830 LBS = 2.12 YDS
4 FT X 12 FT REQ. 9,397 LBS = 2.54 YDS
4 FT X 16 FT REQ.12,580 LBS = 3.40 YDS
4 FT X 20 FT REQ.15,725 LBS = 4.25 YDS

EBARA SEWAGE GRINDER PUMP
48" DUPLEX STATION - 2" PIPING
WITH SLIDE RAIL SYSTEM, V.B., F.D.E.P. PANEL & B.B.U.
TSC PRE-FAB PUMP SOLUTIONS ©

MODEL
TSC2-48.1 BBU R9.dwg ©

2. GROUT FILLET (1 TO 1 SLOPE TO "HOPPER" BOTTOM)
1. HOSE BIBB WITH REDUCED PRESSURE BACK FLOW PREVENTER
FIELD INSTALL BY CONTRACTOR

JOB: ____________________
____
QS: ____________________

GENERAL NOTES

FURNISH AND INSTALL EBARA SUBMERSIBLE GRINDER PUMPS:

DESIGN CONDITION:

MODEL	DGFU	5 HP	HP
GPM	20	113	FT/TDH
VOLTAGE	208/230	THREE	PHASE
DISCHARGE	2"	146mm(5-3/4")	IMPELLER

SEWAGE GRINDER PUMP: 1. RATED FOR TWENTY (20) STARTS PER HOUR.

2. AIR FILLED MOTOR DESIGNED FOR SEWAGE APPLICATION WITH CLASS F INSULATION.
3. DUAL MECHANICAL SHAFT SEALS (SILICON CARBIDE / SILICON CARBIDE) LOCATED OUT OF THE PUMPAGE, IN A SEPARATE OIL FILLED CHAMBER.
4. HIGH TEMPERATURE BALL BEARINGS B-10 RATING OF 60,000 HOURS, UPPER BEARING – SINGLE ROW AND LOWER BEARINGS – DOUBLE ROW TYPE.
5. PUMP SHAFT HORSEPOWER (BHP) SHALL NOT EXCEED MOTOR RATED HORSEPOWER THROUGHOUT THE ENTIRE OPERATING RANGE OF THE PUMP PERFORMANCE CURVE.
6. SINGLE PHASE MOTORS SHALL BE DUAL WOUND, CAPACITOR START-RUN AND CAPABLE OF OPERATING ON 208/230 VOLT WITH A 10% TOLERANCE VOLTAGE (190 TO 260). THREE PHASE MOTORS SHALL BE DUAL WOUND AND CAPABLE OF OPERATING ON 208/230 VOLT WITH A 10% TOLERANCE VOLTAGE (190 TO 260) OR OPERATE ON 460 VOLT BY CHANGING THE MOTOR LEADS INSIDE THE PUMP.

FIBERGLASS WET WELL: SHALL BE A ONE PIECE UNIT WITH INTEGRAL BOTTOM, WALL AND UPPER FLANGE. THE ENTIRE FIBERGLASS WET WELL SHALL HAVE A DYNAMIC LOAD RATING OF 16,000 FT/LBS. EACH UNIT MUST BE SERIAL NUMBERED TO IDENTIFY THE TEST PROCEDURE. ASTM D 3753 & H-20 SPECIFICATIONS SHALL BE REQUIRED AS MINIMUM.

ALUMINUM HATCH: TSC MODEL-54R (54") ROUND WITH 24" X 36" LOCKABLE HATCH, REINFORCED FOR LOAD RATING OF 300 LBS/FT WITH HOLD OPEN SAFETY ARM, LOCKING DEVICE FOR HASP TYPE PADLOCK AND STAINLESS STEEL HARDWARE.

VALVE BOX: FIBERGLASS COMPOSITE (H-10 TRAFFIC RATED) WITH INTEGRAL BOTTOM. (FOR 1 1/4" AND 2" DISCHARGE PIPING SXS HEADER SYSTEM) SHALL BE 26" X 38" X 18" WITH 17" X 30" LIMITED ACCESS LID

ACCESSORIES: #304 S/S – GUIDE RAILS, UPPER GUIDE RAIL BRACKETS, CABLE HOLDER, ANCHOR BOLTS AND PUMP LIFTING CHAINS.

VALVES : SHALL BE SEWAGE SERVICE DESIGN BRASS SWING CHECK VALVES WITH TOP ENTRY CLEAN-OUT PORT AND BRASS WEDGE GATE VALVES OPEN 100%.

PIPING: 2" SCHEDULE 80 PVC.

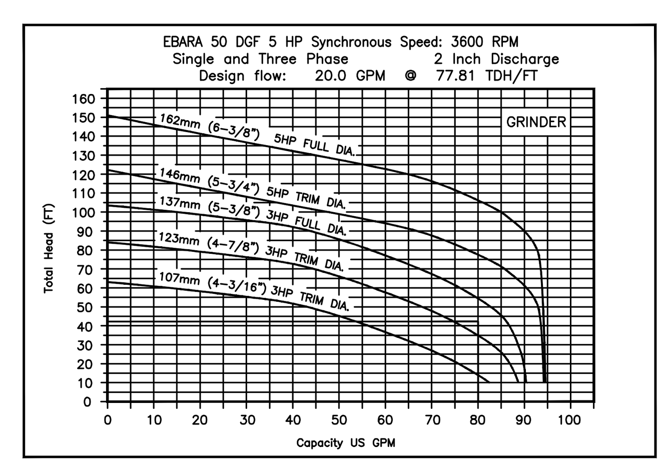
FLOAT SWITCHES: UL LISTED SJ ELECTRO MODEL (SJ 30 SWENO).

PUMP SUPPLIER SHALL PROVIDE SUBMERSIBLE PUMPS, SLIDE RAIL ASSEMBLIES, CONTROL PANEL, JUNCTION BOX, FLOAT SWITCHES, ALUMINUM HATCH AND ACCESSORIES TO INSURE PROPER OPERATION AND WARRANTY.

THE COMPLETE PACKAGE PUMPING STATION SHALL HAVE PUMP BASES, SLIDE RAIL ASSEMBLIES AND DISCHARGE PIPING ASSEMBLED BY TECHNICAL SALES CORPORATION READY TO SHIP FOR FIELD INSTALLATION.

THE MANUFACTURER OF PRE-FAB PUMP SOLUTIONS©:
TECHNICAL SALES CORPORATION, 4621 N. HALE AVE TAMPA, FL 33614 (813)876-9256

Ebara Submersible Pumps



PUMP PERFORMANCE CURVE

CONTROL PANEL –SHALL CONFORM TO FL DEP 64-604.42(A)

CONTROL PANEL SHALL BE TSC MODEL # 38-D IN NEMA 4X FIBERGLASS ENCLOSURE. THE PANEL SHALL MEET STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP), ENVIRONMENTAL PROTECTION COMMISSION (EPC) AND LOCAL CODE REQUIREMENTS GOVERNING PRIVATE LIFT STATIONS.

FLOAT SWITCHES AND CONTROL SYSTEM SHALL BE UL LISTED AND INTRINSICALLY SAFE. ALL COMPONENTS SHALL BE UL LISTED.

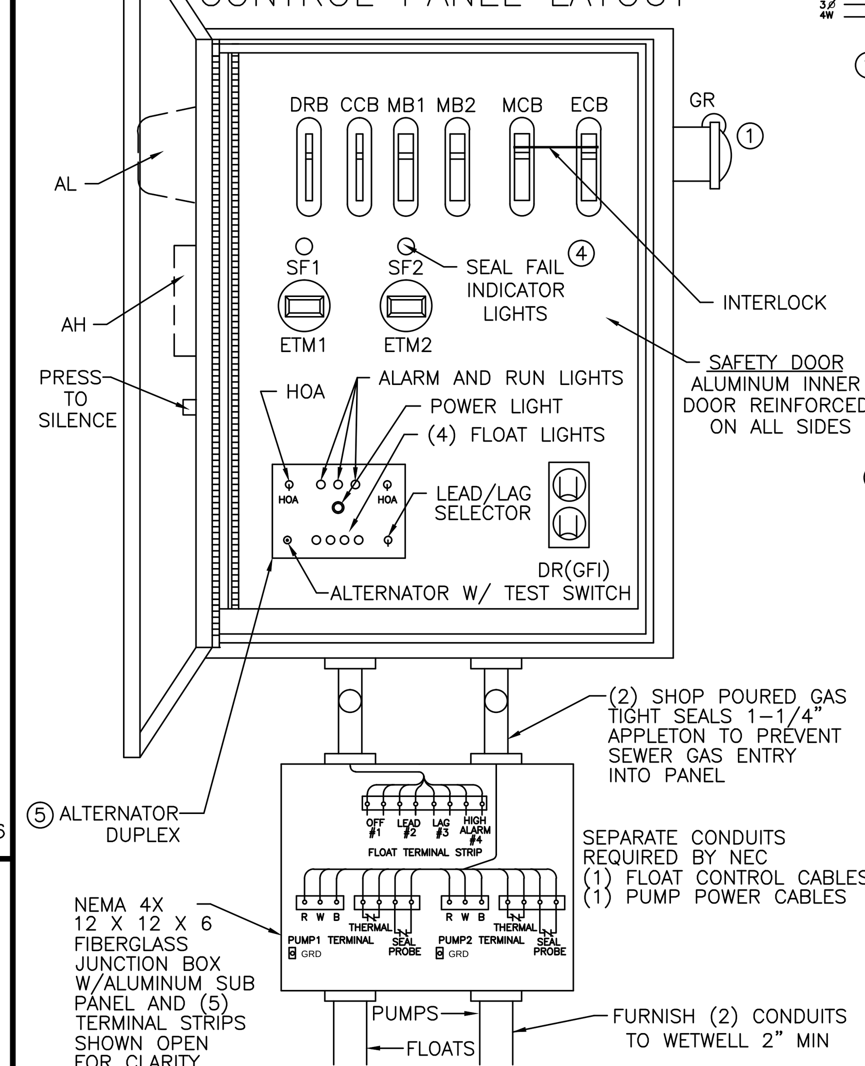
A JUNCTION BOX IS REQUIRED, WITH SHOP POURED SEALS BETWEEN BOX AND CONTROL PANEL TO PREVENT SEWER GAS ENTRY INTO CONTROL PANEL.

ELECTRICAL CONTRACTOR TO PROVIDE SERVICE DISCONNECT WITH LIGHTNING ARRESTOR MOUNTED PER LOCAL CODES.

THE CONTROL PANEL SHALL BE SUITABLY INSTALLED TO PREVENT SETTLING OR TIPPING.

BATTERY BACK-UP ALARM SYSTEM TO BE INCORPORATED INTO CONTROL PANEL PER THE "10 STATES STANDARDS"

CONTROL PANEL LAYOUT

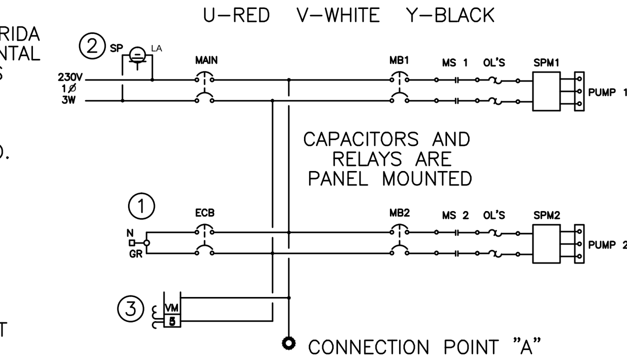


LEGEND

	AH	ALARM HORN
	AL	ALARM LIGHT
	ASB	ALARM SILENCE BUTTON
⑤	ATS	ALTERNATOR W/TEST SWITCH
⑥	BBU	BATTERY (BACK-UP UNIT)
	CCB	CONTROL CIRCUIT BREAKER
	DR	DUPLEX RECEPTACLE
	DRB	DUPLEX RECEPTACLE BREAKER
	ECB	EMERGENCY CIRCUIT BREAKER
	ETM	ELAPSED TIME METER
	F	FUSE
	FL	FLASHER
	FS	FLOAT SWITCH (REGULATOR)
①	GR	GENERATOR RECEPTACLE
	GRD	GROUND
	HOA	HAND-OFF-AUTOMATIC SELECTOR
	LA	LIGHTNING ARRESTOR
	MB	MOTOR BREAKER
	MCB	MAIN CIRCUIT BREAKER
	MS	MOTOR STARTER
	N	NEUTRAL
	OL'S	OVERLOAD HEATERS
③	PM	PHASE MONITOR
	PTS	PUMP TERMINAL STRIP
	R	RELAY
	RC	RUN CAPACITOR
	RD	DISCHARGE RESISTOR
	RL	PUMP RUN INDICATORS
	RTS	REGULATOR TERMINAL STRIP
	SC	START CAPACITOR
④	SF	SEAL FAIL (SHAFT)
	SR	START RELAY
②	SP	SURGE PROTECTOR
	TTS	THERMAL TERMINAL STRIP

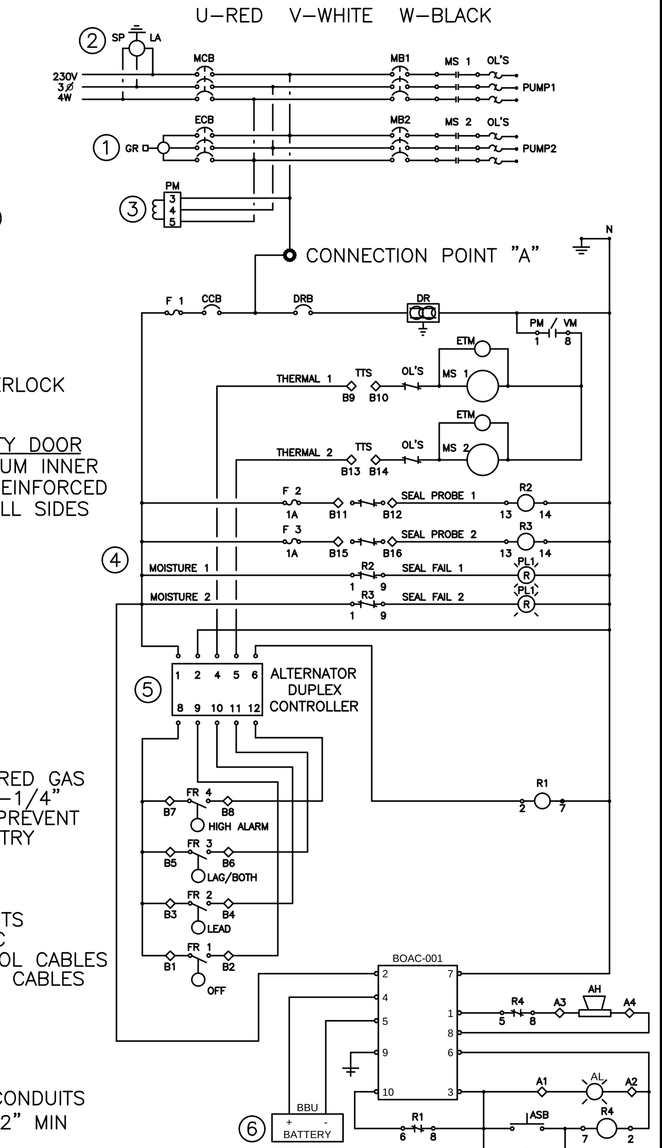
SINGLE PHASE WIRING DIAGRAM

U-RED V-WHITE Y-BLACK



THREE PHASE WIRING DIAGRAM

U-RED V-WHITE W-BLACK



PANEL WIRING DIAGRAM

PANELS SHALL CONFORM TO FLORIDA DEP 64-604.400

1. GENERATOR RECEPTACLE FOR EMERGENCY POWER CONNECTION WITH INTERLOCK
2. SURGE PROTECTION AND LIGHTNING PROTECTION ON ALL INCOMING LEGS
3. PHASE PROTECTION SHALL BE PROVIDED
4. SHAFT SEAL FAIL DETECTION
5. ALTERNATOR W/TEST SWITCH
6. BATTERY BACK-UP UNIT

PANEL MANUFACTURER SHALL BE A "UL" LISTED SHOP.

TSC DUPLEX GRINDER PUMP STATION
FIBERGLASS WET WELL

TECHNICAL SALES
CORPORATION
TSC PRE-FAB PUMP SOLUTIONS©
WATERWORKS & WASTEWATER SPECIALTIES
Representing Innovative Manufacturers
MODEL TSCE2-48.1 BBU©
4621 N. HALE AVENUE PH (813)876-9256
TAMPA, FL 33614 FAX (813)874-1194
EMAIL: Sales@TSCTampa.com

REV-9 SCALE: N.T.S.

48" DUPLEX GRINDER STATION-2" PIPING W/SLIDE RAIL SYSTEM, VALVE BOX, F.D.E.P. PANEL & B.B.U. TSCE2-48.1BBU R9©

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STARKEY RANCH WELCOME CENTER
PUMP STATION PLAN

PREPARED FOR: WS-TSR, LLC

	DATE	DESCRIPTION
2	4/11/2014	COUNTY COMMENTS
1	03/27/2014	UTILITY COMMENT REVISIONS
	02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	PS
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:__________
REGISTRATION NO. 52717

C-601

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PLUMBING FIXTURE DEMAND TABULATION (ESTIMATED)

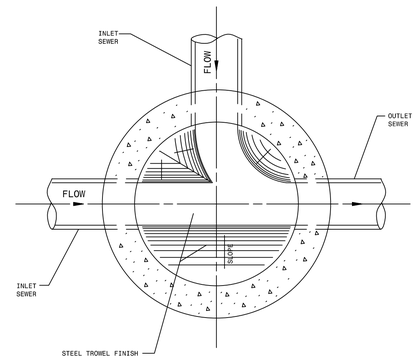
FIXTURE	FIXTURE VALUE *	X	NO. OF FIXTURES	=	FIXTURE COUNT
WELCOME CENTER FIXTURES					
WATER CLOSET - FLUSH VALVE	10	X	2	=	20
LAVATORY	2	X	2	=	4
DRINKING FOUNTAIN - PUBLIC	2	X	1	=	2
KITCHEN SINK	3	X	1	=	3
RECEPTION SINK (Same as Kitchen Sink)	3	X	1	=	3
HOSE CONNECTION (1/2-inch)	6	X	2	=	12
WELCOME CENTER SUBTOTAL					**44**
MISCELLANEOUS SITE FIXTURES					
PUMP STATION HOSE BIBB	6	X	1	=	6
COMBINED FIXTURE VALUE TOTAL:*					**50**

* FIXTURE VALUE BASED ON 35 PSI

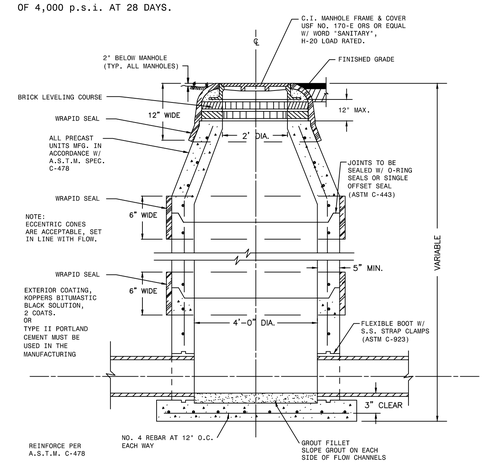
CUSTOMER PEAK DEMAND FROM CURVES			20	GPM
ASSUMED LINE PRESSURE AND PRESSURE FACTOR	65 PSI	1.35		
CUSTOMER PEAK DEMAND FROM CURVES X PRESSURE FACTOR			27	GPM

Use 1-inch Meter

Note:
Estimated irrigation demand for largest irrigation zone is 40 gpm. A 1-inch irrigation meter is proposed



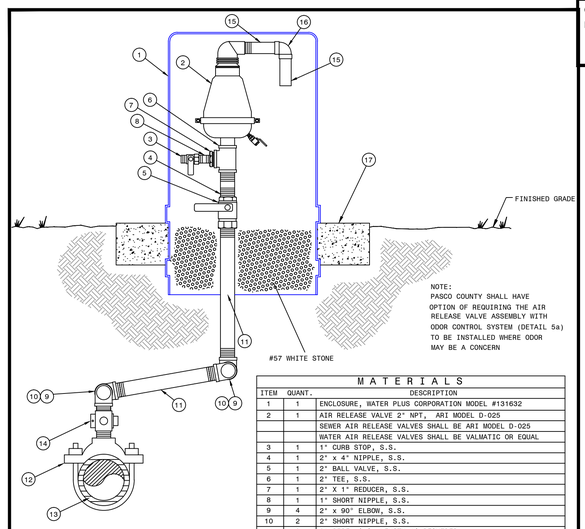
NOTE:
PRECAST CONCRETE
SHALL ATTAIN A MINIMUM
COMPRESSIVE STRENGTH
OF 4,000 p.s.i. AT 28 DAYS.



NOTE: 1. WRAPID SEAL MUST BE USED ON ALL JOINTS, CASTINGS AND RISER RINGS: ON ALL JOINTS ON AIR RELEASES, MANHOLES, GREASE/WATER, OIL/WATER SEPARATORS, AND WETWELLS.
2. WRAPID SEAL MUST BE USED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
3. PASCO COUNTY SHALL HAVE THE OPTION OF SPECIFYING THE TYPE OF INTERIOR LINING TO BE INSTALLED FOR EACH INDIVIDUAL MANHOLE.
4. PASCO COUNTY SHALL HAVE THE OPTION OF REQUIRING A NEGATIVE PRESSURE TEST PER ASTM C-1244
5. LIFT HOLES MUST NOT PENETRATE THE WALLS

CREATED 02/24/03 REVISED	STANDARD MANHOLE (BENCH AND INVERTS)	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN PCU APPROVAL	
	PASCO COUNTY UTILITIES	DETAIL 39	

CREATED 02/24/03 REVISED	STANDARD MANHOLE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN PCU APPROVAL	
	PASCO COUNTY UTILITIES	DETAIL 41	



NOTE:
PASCO COUNTY SHALL HAVE OPTION OF REQUIRING THE AIR RELEASE VALVE ASSEMBLY WITH ODOR CONTROL SYSTEM (DETAIL 5a) TO BE INSTALLED WHERE ODOR MAY BE A CONCERN

M A T E R I A L S

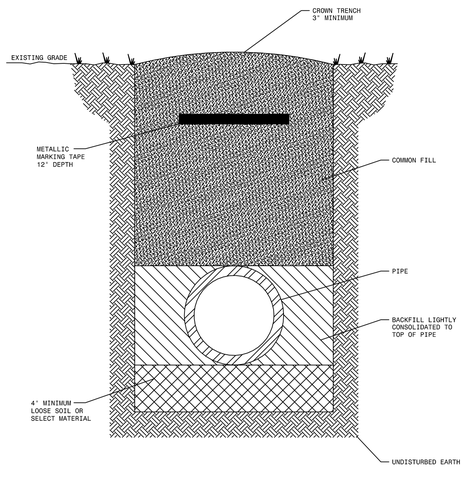
ITEM	QUANT.	DESCRIPTION
1	1	ENCLOSURE, WATER PLUS CORPORATION MODEL #131632
2	1	AIR RELEASE VALVE 2" NPT, ARI MODEL D-025
		SEWER AIR RELEASE VALVES SHALL BE ARI MODEL D-025
		WATER AIR RELEASE VALVES SHALL BE VALMATIC OR EQUAL
3	1	1" CURB STOP, S.S.
4	1	2" x 4" NIPPLE, S.S.
5	1	2" BALL VALVE, S.S.
6	1	2" TEE, S.S.
7	1	2" X 1" REDUCER, S.S.
8	1	1" SHORT NIPPLE, S.S.
9	4	2" x 90° ELBOW, S.S.
10	2	2" SHORT NIPPLE, S.S.
11	2	2" PIPE, S.S. LENGTH AS REQUIRED
12	1	2" DOUBLE STRAP TAPPING SADDLE, S.S.
13	1	4" & LARGER PIPE, D.I. OR PVC (DR-18)
14	1	2" CORPORATION BRASS
15	2	1-1/2" PIPE, PVC, LENGTH AS REQUIRED
16	1	1-1/2" x 90° ELBOW, PVC
17	1	CONCRETE SLAB AROUND ENCLOSURE

NOTE:

VENTED ENCLOSURE TO BE COLOR CODED AS FOLLOWS:

WATER MAIN – BLUE
FORCE MAIN – GREEN
REUSE MAIN – PURPLE

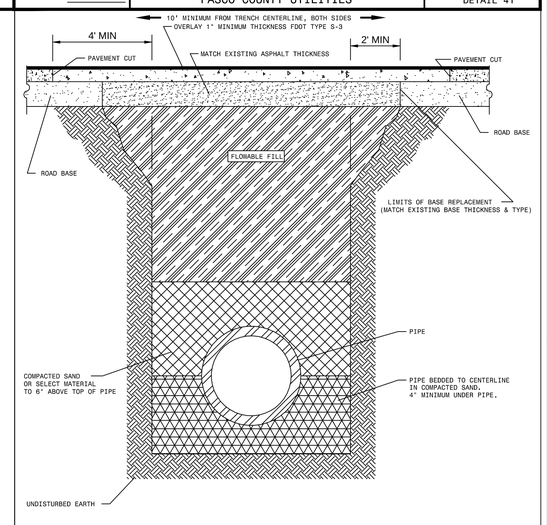
CREATED 02/24/03 REVISED	STANDARD AIR RELEASE VALVE ASSEMBLY ABOVE GROUND VERTICAL PIPE LAYOUT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN PCU APPROVAL	
	PASCO COUNTY UTILITIES	DETAIL 07	



NOTES: -LOOSE SOIL OR SELECT MATERIAL IS NATIVE SOIL EXCAVATED FROM THE TRENCH FREE OF ROCKS AND FOREIGN MATERIAL.
-COMMON FILL TO BE PLACED AND COMPACTED IN 12" LAYERS. ROLLING EQUIPMENT SHALL NOT BE USED FOR COMPACTION UNTIL A MINIMUM OF 18" OF COMMON FILL HAS BEEN PLACED AND COMPACTED OVER THE PIPE. THREE FEET OF FILL SHALL BE PLACED BEFORE A HYDROHAMMER MAY BE USED FOR COMPACTION.

NTS

CREATED 02/24/03 REVISED	PIPE LAYING CONDITIONS STANDARD UNPAVED AREAS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN PCU APPROVAL	
	PASCO COUNTY UTILITIES	DETAIL 35	



NOTE: -SELECT MATERIAL IS NATIVE SOIL EXCAVATED FROM THE TRENCH FREE OF ROCKS AND FOREIGN MATERIAL.
-COMPACTION TO TOP OF PILE IS TO BE APPROXIMATELY 90 % STANDARD PROCTOR, AASHTO T-99.
-EXISTING CONCRETE/ASPHALT PAVEMENT SURFACE AND BASE TO BE CUT SQUARE WITH CONCRETE SAW.

NTS

CREATED 03/06/03 REVISED	PIPE LAYING CONDITIONS FLOWABLE FILL BACKFILL STANDARD EXISTING PAVED AREAS & ROADWAYS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN PCU APPROVAL	
	PASCO COUNTY UTILITIES	DETAIL 36	

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STARKEY RANCH WELCOME CENTER
WATER & SANITARY SEWER DETAILS
WS-TSR, LLC
PREPARED FOR:

DATE	DESCRIPTION
03/27/2014	UTILITY COMMENT REVISIONS
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	WSD
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-602

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PIPE RESTRAINT LENGTHS IN FEET
COMMON FITTINGS

WATER MAINS - TEST PRESSURE 150 PSI						
		FITTING TYPE				
		11-1/4°	22-1/2°	45°	90°	DEAD END
PIPE SIZE	4"	2'	4'	8'	20'	45'
	6"	3'	6'	12'	28'	63'
	8"	4'	7'	15'	36'	82'
	10"	4'	9'	18'	43'	98'
	12"	5'	10'	21'	50'	116'
	16"	6'	13'	26'	63'	148'
	20"	7'	15'	31'	76'	179'
	24"	9'	17'	36'	87'	208'

FORCE MAINS - TEST PRESSURE 100 PSI						
		FITTING TYPE				
		11-1/4°	22-1/2°	45°	90°	DEAD END
PIPE SIZE	4"	1'	3'	6'	13'	30'
	6"	2'	4'	8'	19'	42'
	8"	2'	5'	10'	24'	55'
	10"	3'	6'	12'	29'	66'
	12"	3'	7'	14'	34'	77'
	16"	4'	8'	18'	42'	99'
	20"	5'	10'	21'	50'	119'
	24"	6'	11'	24'	58'	139'

RESTRAINT LENGTHS ARE MEASURED FROM THE CENTER LINE OF THE FITTING ALONG THE PIPE IN BOTH DIRECTIONS (EXCEPT DEAD ENDS).

CREATED 02/24/03
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RESTRAINED JOINT TABLE
COMMON FITTINGS

PASCO COUNTY UTILITIES

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DETAIL 31

PIPE RESTRAINT LENGTHS IN FEET
TEES (BRANCH SIDE)

WATER MAINS - TEST PRESSURE 150 PSI										
		BRANCH SIZE								
		3"	4"	6"	8"	10"	12"	16"	20"	24"
RUN SIZE	3"	6'	14'	30'	—	—	—	—	—	—
	4"	2'	11'	28'	44'	—	—	—	—	—
	6"	1'	2'	22'	40'	52'	—	—	—	—
	8"	1'	1'	16'	35'	48'	62'	—	—	—
	10"	1'	1'	10'	30'	44'	58'	83'	—	—
	12"	1'	1'	3'	25'	40'	55'	80'	103'	—
	16"	1'	1'	1'	14'	31'	48'	75'	98'	119'
	20"	1'	1'	1'	2'	22'	40'	69'	94'	116'
	24"	1'	1'	1'	1'	11'	31'	63'	89'	111'

RESTRAINT LENGTHS ARE MEASURED FROM THE CENTER LINE OF THE TEE ALONG THE BRANCH FOR THE DISTANCE INDICATED. A MINIMUM OF 5 FEET OF RESTRAINED PIPE MUST BE INSTALLED ON BOTH RUNS OF THE TEE. MEGALUG TYPE RESTRAINERS ARE REQUIRED ON ALL JOINTS.

CREATED 02/24/03
REVISED

RESTRAINED JOINT TABLE
TEES (BRANCH SIDE)

PASCO COUNTY UTILITIES

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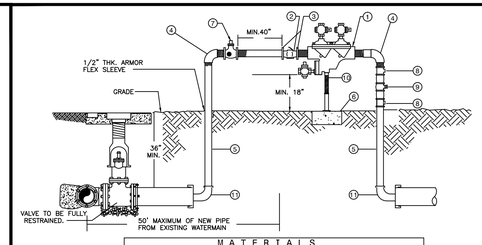
DETAIL 32



MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	2" BACKFLOW PREVENTER ASSEMBLY, REDUCED PRESSURE ZONE
2	1	2" METER FURNISHED BY PASCO COUNTY UTILITIES
3	2	BRASS-METER FLANGES OR ADAPTORS
4	2	2" ELBOWS - GALV. 90°
5	2	2" RISER - GALV.
6	"	CONCRETE SLAB
7	1	2" VALVE - BRASS OR S.S.
8	2	TEE/ VALVES - BRASS OR S.S.
9	1	2" GATE VALVE - BRASS OR S.S.
10	1	PIPE STAND (SUPPORT)
11	2	W.J. CAP WITH 2" TAP

NOTE: – CONTRACTOR/CUSTOMER SHALL APPLY AT PASCO COUNTY UTILITIES CUSTOMER SERVICE FOR TEMPORARY WATER SERVICE AT LEAST THREE DAYS PRIOR TO REQUIRED SERVICE DATE.

– THE METER WILL BE FURNISHED, INSTALLED AND INITIAL READING TAKEN BY PASCO COUNTY UTILITIES. ALL FITTINGS, PIPING, VALVES AND MATERIALS INCLUDING THE PASCO COUNTY APPROVED REDUCED PRESSURE BACKFLOW PREVENTION DEVICE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR/CUSTOMER.

– CONTRACTOR/CUSTOMER FURNISHED REDUCED PRESSURE BACKFLOW PREVENTION DEVICE MUST BE INSTALLED BEFORE THE METER IS INSTALLED BY PASCO COUNTY UTILITIES. THE APPROVED BACKFLOW PREVENTION DEVICE SHALL BE TESTED AND CERTIFIED BY PASCO COUNTY UTILITIES CERTIFIED BACKFLOW PREVENTION TECHNICIAN AT TIME OF METER INSTALLATION.

– CONTRACTOR/CUSTOMER SHALL PROTECT THE JUMPER/METER ASSEMBLY FROM DAMAGE.

– CONTRACTOR/CUSTOMER IS RESPONSIBLE FOR BACTERIOLOGICAL TESTING AFTER CONNECTION OF TEMPORARY WATER SERVICE.

– TEMPORARY CONSTRUCTION JUMPER/METER ASSEMBLY SHALL NOT BE REMOVED UNTIL SYSTEM IS ACCEPTED AND DEPARTMENT OF HEALTH CERTIFICATION AND CLEARANCE FOR SERVICE FORM HAS BEEN RECEIVED BY PASCO COUNTY UTILITIES.

– WHEN THE NEW SYSTEM IS ACCEPTED AND THE FINAL METER READING TAKEN BY PASCO COUNTY, THE TEMPORARY CONSTRUCTION JUMPER/METER ASSEMBLY MUST BE COMPLETELY REMOVED FROM W.J CAP TO W.J. CAP AND A NEW WATER MAIN IS TO BE CHLORINATED AND INSTALLED COMPLETING THE FINAL CONNECTION.

– BY APPLYING FOR SERVICE, CONTRACTOR/CUSTOMER AGREES TO TAKE WATER SERVICE FROM PASCO COUNTY UTILITIES IN ACCORDANCE WITH THE APPROPRIATE RATE SCHEDULE AND IN ACCORDANCE WITH PASCO COUNTY UTILITIES RULES AND REGULATION.

CREATED 11/18/05
REVISED 05/30/06

TEMPORARY CONSTRUCTION WATER SERVICE

PASCO COUNTY UTILITIES

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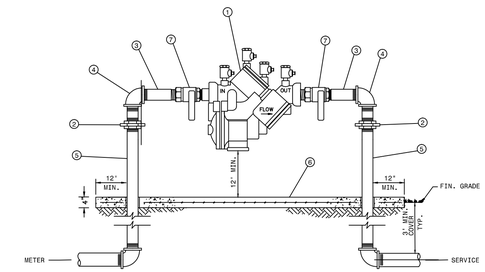
DETAIL 01



MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	BACKFLOW PREVENTER ASSEMBLY, REDUCED PRESSURE ZONE
2	2	UNIONS - GALV.
3	2	NIPPLES - BRASS
4	2	ELBOWS - GALV. 90°
5	2	RISER - GALV.
6	"	CONCRETE SLAB
7	2	BALL VALVES - BRASS OR S.S. (PROVIDED WITH BFP ASS'Y)

NOTE: - FIELD ADJUST AND CUT ITEM 5 TO THE PROPER LENGTH.
- MINIMUM CLEARANCE OF 24" TO BE MAINTAINED AROUND DEVICE FOR TESTING.
- ENTIRE ASSEMBLY TO BE PAINTED SAFETY BLUE.
- CONCRETE SLAB TO EXTEND 12" MIN. AROUND ENTIRE DEVICE.
- DEVICE MUST BE LISTED WITH THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

CREATED 02/24/03
REVISED

REDUCED PRESSURE
BACKFLOW PREVENTER
(SINGLE SERVICE: 3/4", 1", 1-1/2", 2")

PASCO COUNTY UTILITIES

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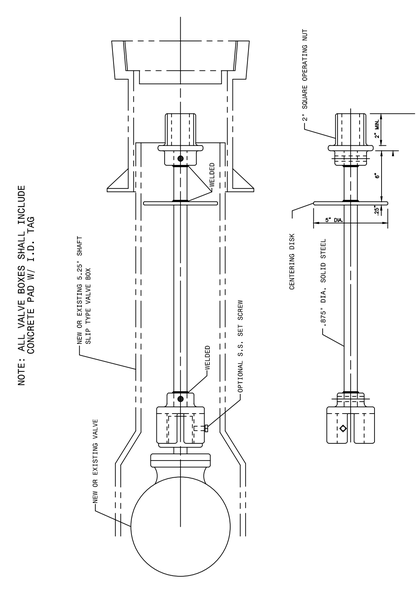
DETAIL 12



CREATED 02/24/03
REVISED

VALVE EXTENSION RODS

PASCO COUNTY UTILITIES

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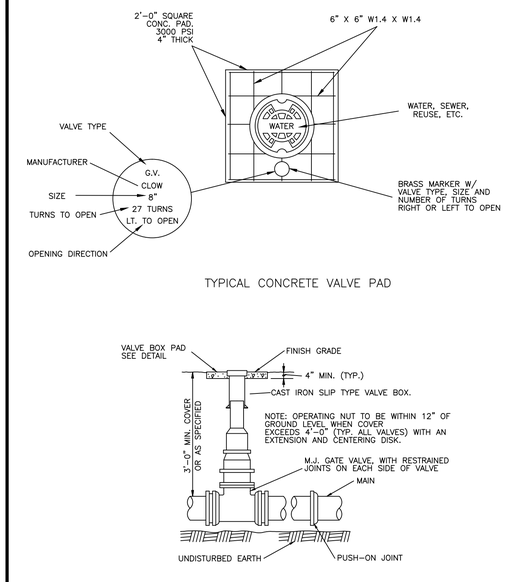
DETAIL 29



CREATED 02/24/03
REVISED

VALVE BOX DETAIL
SLIP TYPE

PASCO COUNTY UTILITIES

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DETAIL 30

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28762
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

STARKEY RANCH
WELCOME CENTER
WATER & SANITARY SEWER
DETAILS

PREPARED BY: WS-TSR, LLC

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DATE	DESCRIPTION

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO: TSR-SR-1018
FILE: WSD
DESIGN BY: BUDEN
DRAWN BY: BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-603

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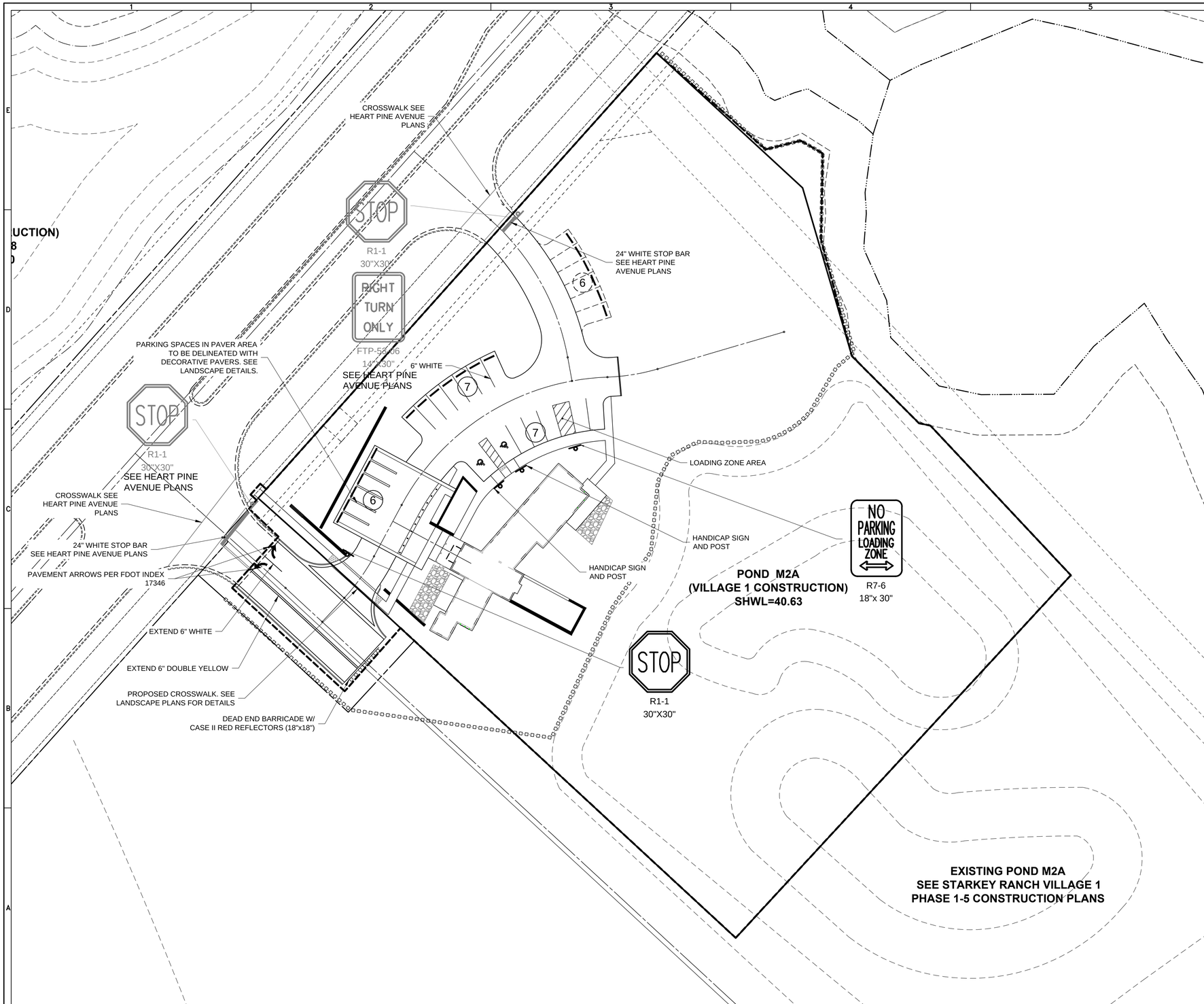

N

0 40 80

GRAPHIC SCALE: 1" = 40'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

SIGNING AND PAVEMENT MARKING NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN CONFORMANCE WITH THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.
2. STREET NAME SIGNS SHALL BE 6" ON LOCAL ROADS AND 9" ON COLLECTOR AND ARTERIAL ROADS. SIX-INCH SIGNS SHALL HAVE 4" SERIES C LETTERS AND 9" SIGNS SHALL HAVE 6" SERIES B LETTERS. ALL STREET NAME SIGNS ON PRIVATE STREETS (NON-COUNTY MAINTAINED) SHALL BE STANDARD D3 STREET NAMES WITH THE COLORS REVERSED, WHITE BACKGROUND WITH GREEN LETTERS AND BORDER. AT INTERSECTIONS WITH COUNTY MAINTAINED ROADS, THE COUNTY MAINTAINED ROAD SHALL BE GREEN BACKGROUND WITH WHITE LETTERS.
3. CONTRACTOR MUST CONTACT ENGINEER OF RECORD PRIOR TO ORDERING STREET NAME SIGNS. APPROVED STREET NAMES CANNOT BE DETERMINED UNTIL RECORDING OF THE PLAT.
4. EXISTING STRIPING AND OTHER PAVEMENT MARKINGS TO BE REMOVED SHALL BE DONE AS NECESSARY BY HYDROBLASTING. GRINDING IS NOT PERMITTED.

HEIDT DESIGN
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Fax: 813-464-7629
www.HeidtDesign.com

STARKEY RANCH
WELCOME CENTER
SIGNING & PAVEMENT MARKING PLAN

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION

	DATE	DESCRIPTION
5	11/10/2014	SITE PLAN MODIFICATION
2	4/11/2014	COUNTY COMMENTS
	02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	SPM
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-700

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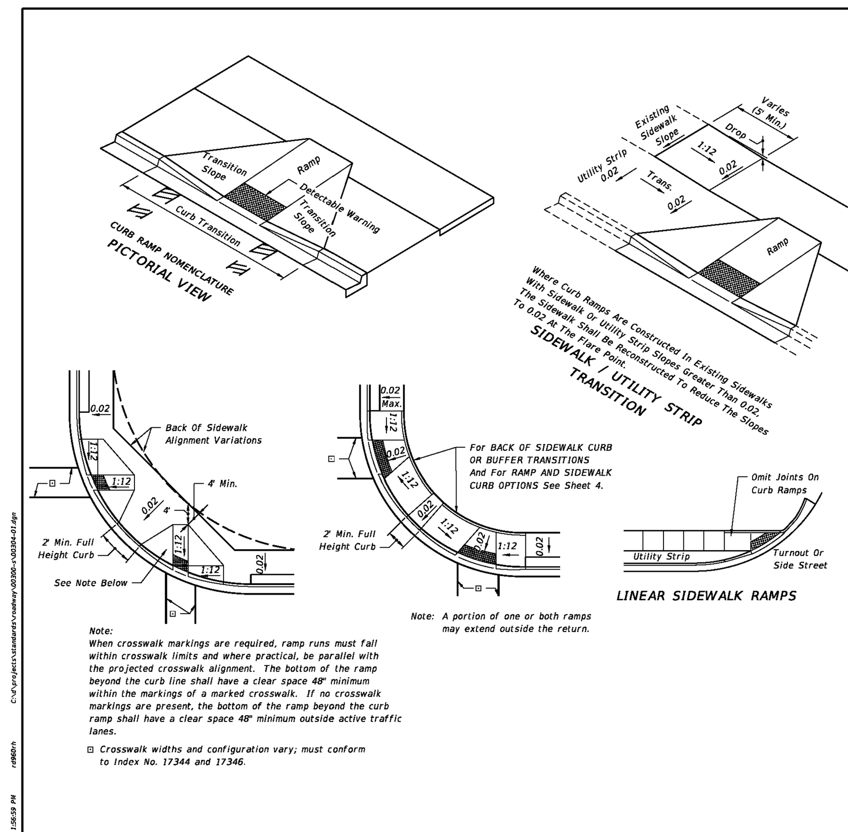


TYPICAL PLACEMENT OF PUBLIC SIDEWALK CURB RAMPS AT CURBED RETURNS

GENERAL NOTES

1. Public sidewalk curb ramps shall be constructed in the public right of way at locations that will provide continuous unobstructed pedestrian circulation paths to pedestrian areas, elements and facilities in the public right of way and to accessible pedestrian routes on adjacent sites. Curbed facilities with sidewalks and those without sidewalks are to have curb ramps constructed at all street intersections and at turnouts that have curbed returns. Partial curb returns shall extend to the limit prescribed by Index No. 515 to accommodate curb ramps. Ramps constructed at locations without sidewalks shall have a landing constructed at the top of each ramp, see Sheet 5.
2. The location and orientation of curb ramps shall be as shown in the plans.
3. Curb ramp running slopes at unrestrained sites shall not be steeper than 1:12 and cross slope shall be 0.02 or flatter. Transition slopes shall not be steeper than 1:12.

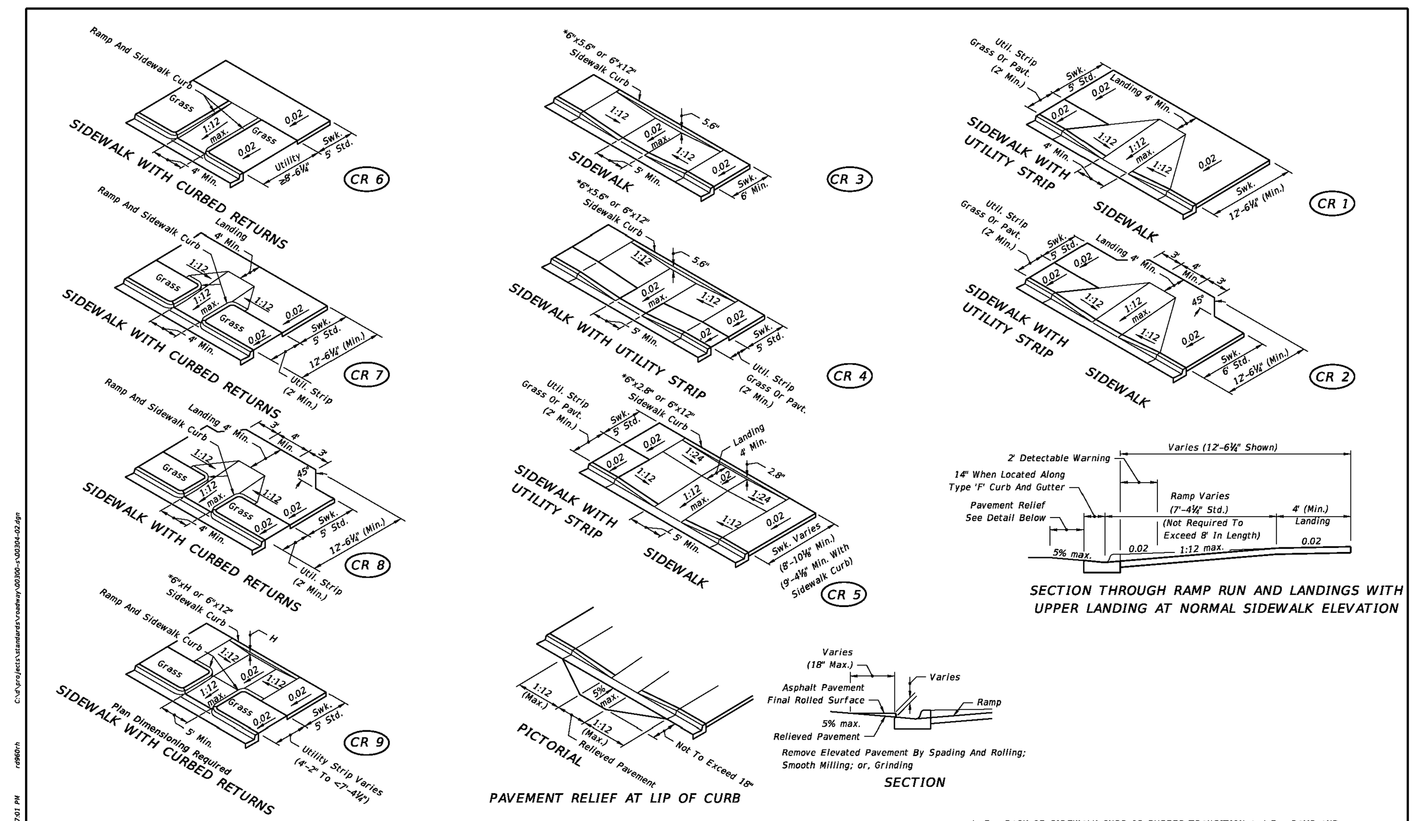
   When altering existing pedestrian facilities where existing site development precludes the accommodation of a ramp slope of 1:12, a running slope between 1:12 and 1:10 is permitted for a rise of 6" maximum and a running slope of between 1:10 and 1:8 is permitted for a rise of 3" maximum. Where compliance with the requirements for cross slope cannot be fully met, the minimum feasible cross slope shall be provided.

   Ramp running slope is not required to exceed 8' in length, except at sites where the plans specify a greater length.
4. If a curb ramp is located where pedestrians must walk across the ramp, then the walk shall have transition slopes to the ramp; the maximum slope of the transitions shall be 1:12. Ramps with curb returns may be used at locations where other improvements provide guidance away from that portion of curb perpendicular to the sidewalk; improvements for guidance are not required at curb ramps for linear pedestrian traffic.
5. Curb ramp detectable warning surfaces shall extend the full width of the ramp and 24" deep. Detectable warning surfaces shall be constructed in accordance with Specification 527. See Sheet 6 for detectable warning layouts. Transition slopes are not to have detectable warnings. Detectable warnings are required on sidewalks at intersecting roads, streets and railroads. For requirements for detectable warnings on sidewalks at intersecting driveways, see Index 310.
6. Where a curb ramp is constructed within existing curb, curb and gutter and/or sidewalk, the existing curb or curb and gutter shall be removed to the nearest joint beyond the curb transitions or to the extent that no remaining section of curb or curb and gutter is less than 5' long. The existing sidewalk shall be removed to the nearest joint beyond the transition slope or walk around or to the extent that no remaining section of sidewalk is less than 5' long. For details of Concrete Sidewalk See Index 310.
7. Alpha-numeric identifications are for reference (plans, permits, etc.).
8. Public sidewalk curb ramps are to be paid for as follows:

   Ramps, reconstructed sidewalks, walk around sidewalks, sidewalk landings and sidewalk curbs are to be paid for under the contract unit price for Sidewalk Concrete, (__" Thick), SY. Curb transitions and reconstructed curbs are to be paid for under the contract unit price for the parent curb, i.e., Concrete Curb (Type __), LF or Concrete Curb and Gutter (Type __), LF.

   When a separate pay item for the removal and disposal of existing curb, curb and gutter, and/or sidewalk is not provided in the plans, the cost of removal and disposal of these features shall be included in the contract unit price for new curb, curb and gutter and/or sidewalk respectively.
9. Acceptance Criteria for Detectable Warnings:
   - a. The ramp detectable warning surface shall be complete and uniform in color and texture
   - b. 90% of the individual truncated domes must comply with the design criteria
   - c. There may be no more than 4 non-complying domes in any one square foot of surface
   - d. No two adjacent domes may be non-compliant
   - e. Surface may not deviate more than 0.10" from a true plane
10. All sidewalk surfaces, ramp surfaces, and landings with a cross slope shown in this Index to be 0.02 shall be 0.02 maximum. All ramp surfaces and ramp transition slopes with a slope shown in this Index to be 1:12 shall be 1:12 maximum.

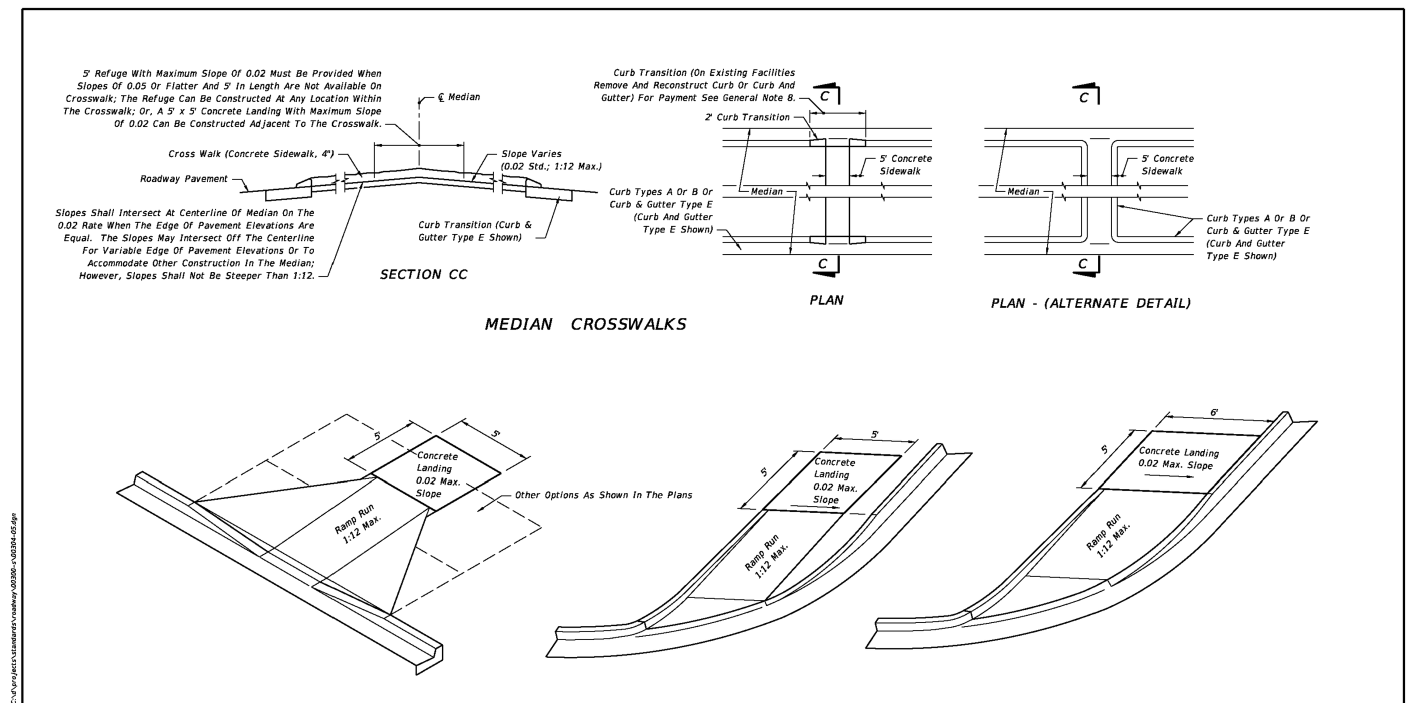
LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	PUBLIC SIDEWALK CURB RAMPS	INDEX NO.	SHEET NO.
01/01/11					304	1



DIMENSIONAL FEATURES FOR PUBLIC SIDEWALK CURB RAMPS WHERE RAMP AND LANDING DEPTH ARE NOT RESTRICTED BY RIGHT OF WAY

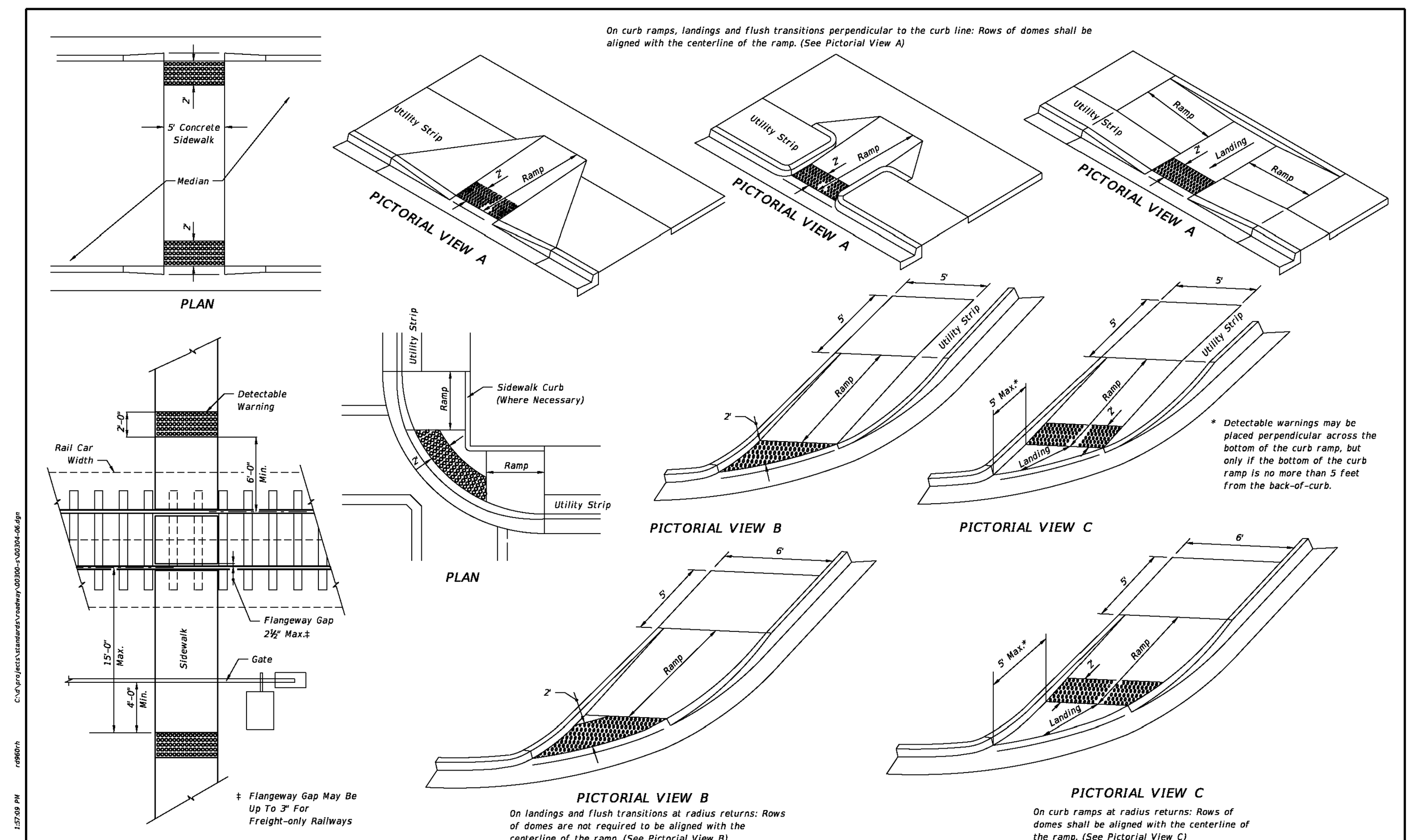
* For BACK OF SIDEWALK CURB OR BUFFER TRANSITION And For RAMP AND SIDEWALK CURB OPTIONS See Sheet 4.

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	PUBLIC SIDEWALK CURB RAMPS	INDEX NO.	SHEET NO.
01/01/11					304	2



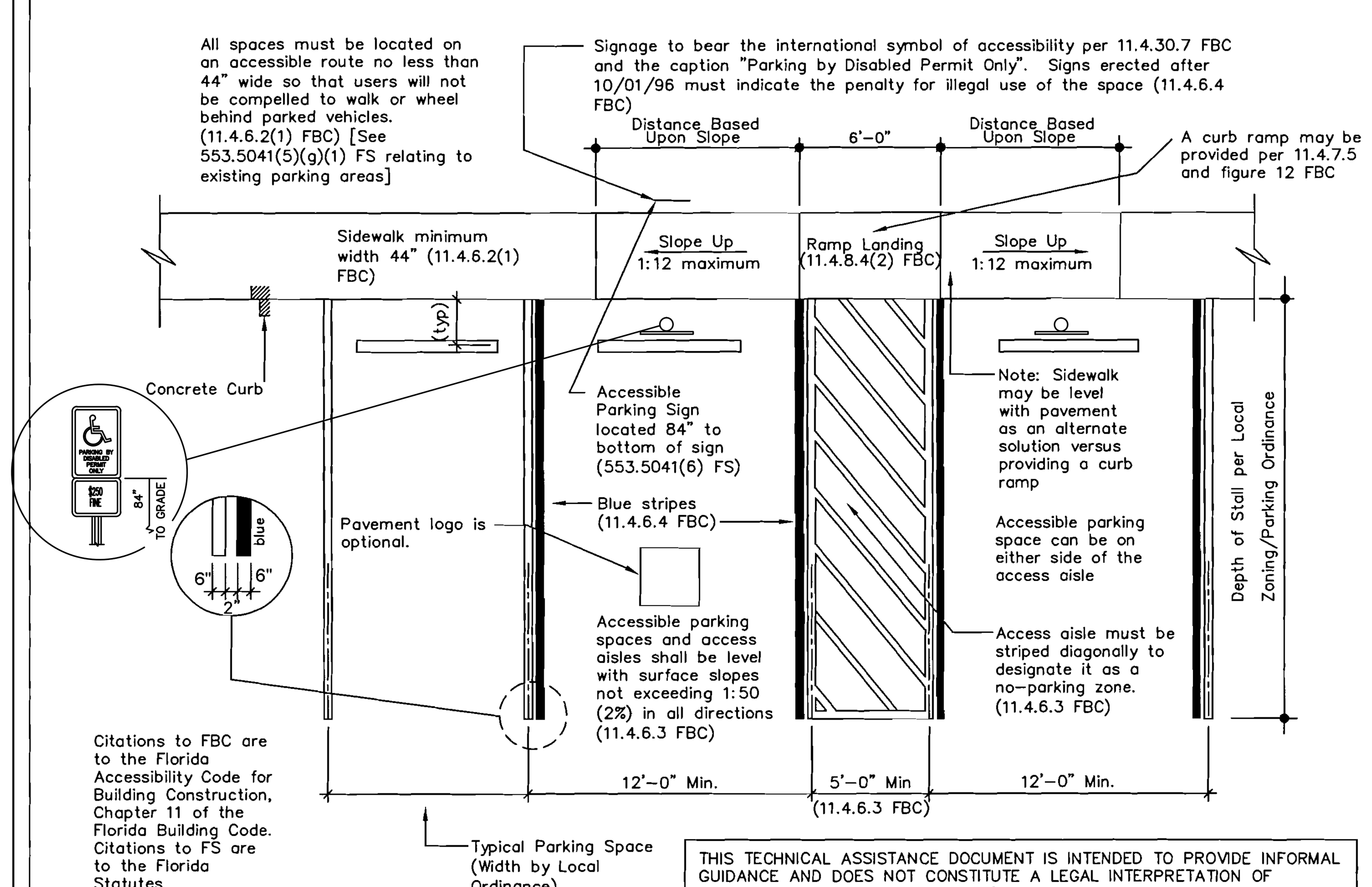
LANDINGS FOR RAMPS WITHIN PUBLIC RIGHT OF WAY CONSTRUCTED AT LOCATIONS WHERE FUTURE SIDEWALKS ARE PROPOSED, WHERE STABLE SURFACES OTHER THAN SIDEWALKS ARE PART OF A CONTINUOUS PASSAGE OR WHERE A CURB FALLS ALONG THE CIRCULATION PATH TO PEDESTRIAN ROUTES ON ADJACENT SITES

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	PUBLIC SIDEWALK CURB RAMPS	INDEX NO.	SHEET NO.
01/01/11					304	5



TYPICAL PLACEMENT OF DETECTABLE WARNING AT CURB RAMPS

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	PUBLIC SIDEWALK CURB RAMPS	INDEX NO.	SHEET NO.
07/01/12					304	6



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Recommended Accessible Parking Space(s) Design for Single Line Requirements

N.T.S.

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Ecological Services • Landscape Architecture
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Landscape Architecture Certificate of Authorization No. LC26000405
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STARKEY RANCH WELCOME CENTER
SIGNING & PAVEMENT MARKING DETAILS

PREPARED FOR: WS-TSR, LLC

DATE	DESCRIPTION
02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	SPM
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:____________
REGISTRATION NO. 52717

C-701

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STORM WATER POLLUTION PREVENTION PLAN

Contained on these plans and within the following notes is a storm water pollution prevention plan (swppp) which has been developed by Heidt Design, LLC in accordance with the Florida Department of Environmental Protection's (FDEP) "National Pollutant Discharge Elimination System" (NPDES) generic permit for stormwater discharge from large and small construction activities.

The following entities are identified as team members of "SWPP": Heidt Design, LLC, the developer as identified in the title box of these plans, and the site contractor and his sub-contractors. Each team member has specific responsibilities and obligations. In general, all team members, with regard to their involvement and responsibilities on the project, are to implement all necessary storm water management controls to assure compliance with the NPDES generic permit for storm water discharges from construction activities, the Southwest Florida Water Management District Permit, the applicable local governing agency (i.e. Pasco County) and the guidelines listed in the SWPP. The duties and responsibilities of the team members as they pertain to the SWPP are as follows:

HEIDT DESIGN, LLC:

A. Develop SWPP including, but not limited to, retention/detention ponds, control structures, erosion control methods and locations and stabilization criteria. This design is included within these construction plans and the following notes and instructions.

B. Submit and obtain the necessary design related storm water permits from the Florida Department of Environmental Protection, the Southwest Florida Water Management District and other applicable governmental bodies.

C. Upon notification by the developer of his intent to commence construction, submit a notice of intent to the FDEP on behalf of the developer and copy the contractor including SWPP certification and copy of the permit.

D. Submit to SWFWMD and the operator of the municipal separate storm water system, if applicable, a letter of construction commencement.

E. Complete and submit a notice of termination and certification for developer. The NOT's shall be submitted no more than 30 days after;

(a) Completion of the project and final stabilization of the site or

(b) When responsibility for the site has ended. Final stabilization as defined by EPA is when all soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. As an alternative, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) may be employed. The client shall notify Heidt Design, LLC when one of these criteria has been met.

CONTRACTOR:

A. Sign and return to Heidt a contractors certification form certifying your understanding of and willingness to comply with the Storm Water Pollution Prevention Plan no later than 48 hours prior to commencement of construction. Also, each subcontractor affected by the SWPP must certify to the contractor that they understand and shall comply with the NPDES Permit and SWPP. A record of these certifications shall be maintained by the contractor on site.

B. During construction, assure compliance with the designed Storm Water Pollution Prevention plans prepared by Heidt Design, LLC and the NPDES Generic Permit for storm water discharges from large and small construction activities.

C. Maintain a copy of the construction plans, which include the Storm Water Pollution Prevention Plan, the NOI, and all inspection reports and certifications on site.

D. Undertake all reasonable Best Management Practices (BMP's) to assure that silted or otherwise polluted storm water is not allowed to discharge from the site during all phases of construction. Stabilization BMP's that may be used include:

Temporary or permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees and preservation of mature vegetation. Structural erosion and sediment control BMP's that may be used include: straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drain, pipe slope drain, level spreaders, storm drain inlet protection, outlet protection, sediment traps, and temporary sediment basins. Detention ponds may also be used as temporary sediment basins. Additional BMP's that may need to be implemented include: providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials. Providing waste receptacles at convenient locations and providing regular collection of wastes, including building material wastes. Minimizing off-site tracking of sediments. Making adequate preparations, including training and equipment to contain spills of oil and hazardous materials. Complying with applicable state or local waste disposal, sanitary sewer or septic system regulations and the use of appropriate pollution prevention measures for allowable non-storm water components of discharge.

E. Notify Heidt Design, LLC and the developer in writing of any non-storm water pollution sources which are being stored, or otherwise used during the construction of the project, i.e., fertilizers, fuels, pesticides, other chemicals. This notification should be accompanied with the contractor's design and methods to prevent pollution run-off from these sources.

F. Develop a maintenance and inspection plan which includes, but is not limited to the following:

(a) The specific areas to be inspected and maintained that includes all the disturbed areas and material storage areas of the site.

(b) The erosion and sediment controls identified in the swppp to be maintained and inspected and those additional controls that the contractor deems necessary.

(c) Maintenance procedures.

(d) The procedure to follow if additional work is required or whom to call.

(e) Inspections and maintenance forms.

(f) The personnel assigned to each task.

The following shall be inspected a minimum of once a week or within 24 hours after 0.50 inches of rainfall:

Stabilization measures (once a month if fully stabilized).

Structural controls.

Discharge points.

Construction entrances and exits.

Areas used for storage of exposed materials.

An inspection form shall be completed for each inspection. Any permit violations should be noted and corrective measures shall be taken no later than 7 days after the inspection occurred. If revisions to the SWPP are needed, a report form for changes in the SWPP shall be completed and a copy sent to Heidt Design, LLC the original shall be kept on-site as documentation of the change. If the inspection passes, a certification that the facility is in compliance with the SWPP and the NPDES Permit must be signed by a duly authorized representative of the principal executive official of the operator of the SWPP with one of the following qualifications:

1. Has successfully completed the Florida Stormwater, Erosion and Sediment Control Inspector Training Program.

2. Successfully completed a similar training program.

3. Has enough practical on the job training to be qualified to perform the inspections.

4. Retain inspection reports and certifications for at least three years.

G. Site stabilization measures shall be initiated as soon as practical but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

H. Releases in excess of reportable quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable Stormwater Pollution Prevention Plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 cfr part 117 and 40 cfr part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 cfr 117 or 40 cfr 302, occurs during a 24 hour period:

A. The operator is required to notify the State Warning Point (800-210-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;

B. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and

C. The Stormwater Pollution Prevention Plan required under part V of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

DEVELOPER:

A. Notify Heidt of your intent to commence construction. Sign the Notice of Intent form as operator of the storm water discharge facility and permittee and return to Heidt Design, LLC.

B. Sign a certification of Storm Water Pollution Prevention Plan and return to Heidt Design, LLC.

C. Notify Heidt when it is time to submit a Notice of Termination as defined under part E of the Heidt Design, LLC section of the SWPP. Sign and return to Heidt Design, LLC for submittal to FDEP a Notice of Termination form and certification.

PRE-DEVELOPED SITE INFORMATION:

1. Total Site Acreage: 3.46± AC.

2. Land Use: UNDEVELOPED - AGRICULTURAL

3. Vegetation: RANGE LAND, BAHIA GRASS PASTURE

4. Receiving waters or municipal separate storm water system: ANCLOTE RIVER

5. 2 Year/24 Hour Rainfall Depth: 4.5"

6. Soil Types: NARCOOSSEE, SELLERS, SMYRNA, SAMSULA, MYAKKA

PROJECT INFORMATION:

1. Project Type - COMMERCIAL

2. Anticipated Construction Sequence is as follows:
   1. Complete Erosion Control Installation
   2. Clearing and Grubbing
   3. Earthwork Activities
   4. Storm Water System Construction
   5. Utility Construction
   6. Base and Pavement Construction
   7. Final Stabilization

The BMP's listed in part D of the Contractor Section of the SWPPP shall be considered during all phases of construction.

3. Anticipated Start Date: 04/01/2014

4. Anticipated Completion Date: 08/15/2014

5. Total Acres Disturbed: 3.15 Ac.

6. Pre-Developed "C" Factor: 0.20

7. Post-Developed "C" Factor: 0.52

8. The Storm Water Management System, upon completion of construction and appropriate certification and as-built submittals will be operated and maintained by WS-TSR, LLC.

9. The potential source of pollution from this project is on-site development and construction activity.

OWNER'S INSTRUCTIONS FOR MAINTENANCE
AND INSPECTION OF STORMWATER FILTER FACILITIES

Drainage systems should be inspected on a routine basis to ensure that they are functioning properly. Inspections can be on an annual or semi-annual basis, but should always be conducted following major storms. Systems that incorporate infiltration are most critical since poor maintenance practices can soon render them inefficient. Visual inspections of sand filters, control structures, and outfall pipes are highly recommended. It should be stressed that good records should be kept on all maintenance operations to help plan future work and identify facilities requiring attention.

Sand filter surfaces are sometimes scarified or break up silt deposits and restore porosity. This should be accomplished after all sediment has been removed from the surface. After removing large debris (cups, paper, wood, etc.) it is recommended that raking the top 3" will properly scarify the surface or it may be required to replace the sand. Another technique requires removing the sand for washing.

The filter system is designed to have a wet-dry cycle to inhibit algae or bacterial growth. Cleanout frequency of filter beds will depend on whether they are vegetated or non-vegetated and will be a function of their storage capacity, infiltration characteristics, volume of inflow, and sediment load. Filter beds should be inspected closely at least once a year.

Perforated underdrain pipes are located 2' below the sand and cleanouts are located at the end of the system. In the even of sediment build-up in the underdrain pipe, cleaning can be accomplished throught the cleanout with several of the techniques outlined below.

Methods and equipment for cleanout of systems various types of equipment are available commercially for maintenance of drainage systems. The most frequently used equipment and techniques are listed below.

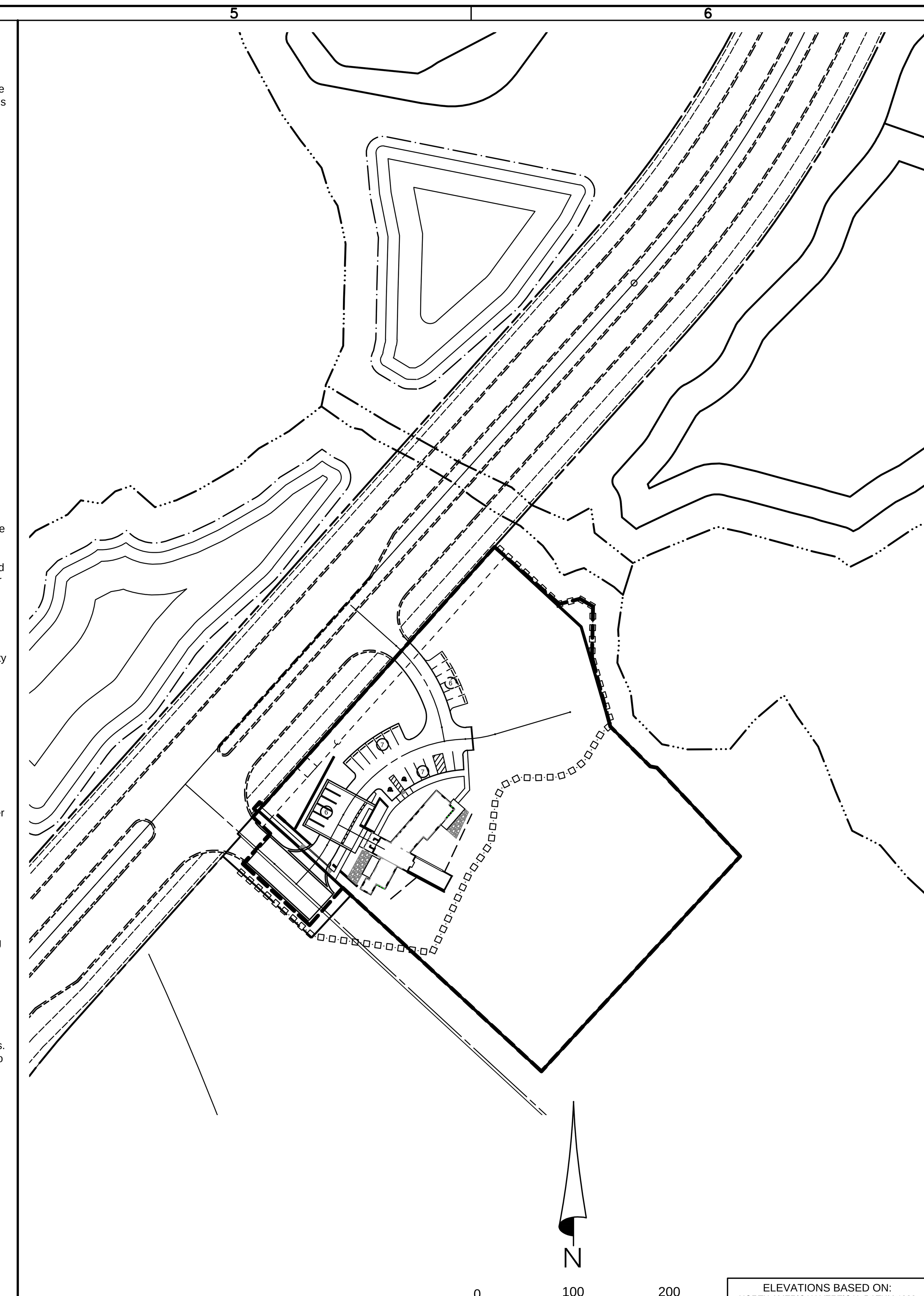
1. Vacuum Pump
   This device is normally used to remove sediment from sumps and pipes. The equipment for this system is generally mounted on a vehicle. It requires a 200 - 300 gallon (0.757 - 1.36m) holding tank and a vacuum pump that has a 10" (254mm) diameter flexible hose with a serrated metal end for breaking up cake sediment. A two-man crew can clean a catch basin in 5 to 10 minutes. this system can remove stones, bricks, leaves, litter and sediment deposits. Normal working depth is 0' - 20' (0 to 6m).

2. Water Jet Spray
   This equipment is generally mounted on a self-contained vehicle with a high pressure pump and a 200 - 300 gallons (0.760 to 1.140m) water supply. A 3" (76mm) flexible hose line with a metal nozzle that directs jets of water at a reverse angle, which propels the nozzle forward while blasting debris backwards toward the catch basin. As the hose line is reeled in, the jetting action forces all debris to the catch basin where it is removed by the vacuum pump equipment. Normal length of hose is approximately 200' (61m). Because of the energy supplied by the water jet, it should not be used to clean erodible trench walls.

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. The Site Subcontractor shall be responsible for installation and maintenance of all erosion and turbidity controls and the quality and quantity of offsite or wetland discharges.
2. Prior to construction, the Site Subcontractor is responsible for having his dewatering plan and turbidity control plan approved by the applicable reviewing agencies. Refer to the project's permit approvals and permit conditions for agencies requiring such review and approval. Questions concerning appropriate techniques should be addressed to those agencies and/or discussed with the project engineer and owner.
3. The appropriate turbidity and erosion control methodologies selected by the Site Subcontractor for this project should be made following assessment of the plans and project site specific factors and after consultations as needed with the project engineer and appropriate agencies. The Site Subcontractor will be responsible for obtaining any and all necessary permits for such activity; several factors to consider are listed below:
   A. Clay content in excavated materials and/or permeabilities rates
   B. Depth of cut in ponds, trenches, or utility lines
   C. Ambient ground water levels
   D. Actual rainfall amounts and time of year relative to normal rainy season
   E. Proximity to wetlands, water bodies or offsite properties
   F. 'Class' designation of receiving water bodies (i.e., Outstanding Florida Waters, shellfish harvesting areas, etc.)
   G. Density, type, and proximity of upland vegetation to be retained during construction (for use as possible filtration areas)
   H. Fill height relative to natural grade and length and steepness of the proposed slopes
   I. Existing topography and directions of surface flow
   J. Type of equipment used
   K. Project type
   L. Duration of construction activities
   M. Separation distance of onsite ponds
   N. Ambient quality of surface and groundwater
   O. Temporary stockpile locations and heights
4. At the onset of construction, the Site Subcontractor, as the party responsible for implementation of the erosion and sediment control plan, shall assess the above described conditions and factors with respect to relative cost effectiveness and select the appropriate methods of protection. A fairly extensive list of techniques are presented below but it must be stressed that any or all of the following may be necessary to maintain water quality and quantity standards. The construction sequencing should be thought out in advance of initiation to provide adequate protection of water quality.
5. Discharges which exceed 29 N.T.U.'s over the background levels are in violation of state water quality standards. Discharges of water quantities which affect offsite properties or may damage wetlands are also prohibited by regulating agencies.
6. The erosion and turbidity control measures shown hereon are the minimum required for agency approval. Additional control and measures may be required due to the Site Subcontractor's construction sequence & unforeseen weather conditions. Any additional measures deemed necessary by the Site Subcontractor shall be included in the lump sum bid with no extras for materials and labor allowed.
7. Hay bales or silt screens shall be installed prior to land clearing to protect water quality and to identify areas to be protected from clearing activities and maintained for the duration of the project until all soil is stabilized.
8. Floating turbidity barriers shall be in place in flowing systems or in open water lake edges prior to initiation of earthwork and maintained for the duration of the project until all soil is stabilized.
9. No clay material shall be left exposed in any stormwater storage facility. If clay or sandy-clays are encountered during stormwater storage excavation, the Site Subcontractor shall notify the Engineer immediately before proceeding with further excavation. If the Engineer of Record has determined that such soils are non-confining and must be excavated to meet permit and design conditions, excavation may proceed after obtaining written authorization from the appropriate governing agency. If said soils are left exposed at the permitted and designed depth, the Site Subcontractor shall over-excavate the pond's bottom and side slopes by a minimum of twelve (12") inches and backfill with clean sands to help prevent suspension of fine particles in the water column.
10. The installation of temporary erosion control barriers shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the construction phase.
11. The type of erosion control barriers used shall be governed by the nature of the construction operation and soil type that will be exposed. Silty and clayey material may require solid sediment barriers to prevent turbid water discharge, while sandy material may need only silt screens or hay bales to prevent erosion. Floating turbidity curtains should generally be used in open water situations. Diversion ditches or swales may be required to prevent turbid stormwater runoff from being discharged to wetlands or other water bodies. It may be necessary to employ a combination of barriers, ditches, and other erosion/turbidity control measures if conditions warrant.
12. Where pumps are to be used to remove turbid waters from construction areas, the water shall be treated prior to discharge to the wetlands. Treatment methods include, for example, turbid water being pumped into grassed swales or appropriate upland vegetated areas (other than upland preservation areas and wetland buffers), sediment basins, or confined by an appropriate enclosure such as turbidity barriers or low berms, and kept confined until turbidity levels meet State Water Quality Standards.
13. The Permittee shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operation, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable. Clearing and grubbing shall be so scheduled and performed such that grading operations can follow immediately thereafter. Grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.
14. Water derived from various dewatering methods should be passed through sufficiently wide areas of existing upland vegetation to filter out excess turbidity. If this is not sufficient, the water shall be retained in previously constructed permanent stormwater ponds or else retained in temporary sedimentation basins until the clarity is suitable to allow for its discharge. Plugging the outfalls from completed stormwater ponds may be needed to avoid discharge. However, such situations should be monitored closely to preclude berm failure if water levels rise too high.
15. Water can be transported around the site by the use of internal swales or by pumps and pipes.
16. Sheet flow of newly filled or scraped areas may be controlled or contained by the use of brush barriers, diversion swales, interceptor ditches or low berms. Flow should be directed toward areas where sediments can sufficiently settle out.
17. Exposed soils shall be stabilized as soon as possible, especially slopes leading to wetlands. Stabilization methods include solid sod, seeding and mulching or hydromulching to provide a temporary or permanent grass cover mulch blankets, filter fabrics, etc., can be employed to provide vegetative cover.
18. Energy dissipaters (such as rip rap, a gravel bed, hay bales, etc.) shall be installed at the discharge point of pipes or swales if scouring is observed.
19. Attempt to install roadway curb and gutters as soon as possible to reduce the surface area for erosion to occur.
20. Implement storm drain inlet protection (hay bales or gravel) to limit sedimentation within the stormwater system. Perform inspections and periodic cleaning of sediments which wash out into the streets until all soil is stabilized.
21. Water discharge velocities from impounded areas and temporary sedimentation basins shall be restricted to avoid scouring in receiving areas.
22. If water clarity does not reduce to state standards rapidly enough in holding ponds, it may be possible to use chemical agents such as alum to flocculate or coagulate the sediment particles.
23. Hay bales, silt screens, or gravel beds can be added around the pipe or swale discharge points to help clarify discharges. Spreader swales may help dissipate cloudy water prior to contact with wetlands.
24. All fuel storage areas or other hazardous storage areas shall conform to accepted state or federal criteria for such containment areas.
25. Vehicle or equipment washdown areas will be sufficiently removed from wetlands or offsite areas.
26. Fugitive dust controls (primarily by using water spray trucks) shall be employed as needed to control windborn emissions.
27. If the above controls remain ineffective in precluding release of turbid water, especially during pond or utility line dewatering, then the contractor may be compelled to use a vertical dewatering system such as well points or sock drains to withdraw groundwater which may already be clear enough to allow for direct discharge to wetlands.
28. Ongoing inspections and periodic maintenance by the Site Subcontractor shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. Site Subcontractors are encouraged to obtain and thoroughly review The Florida Development Manual: A Guide to Sound Land and Water Management, which was developed by the State of Florida Department of Environmental Protection in 1988. This provides fairly in-depth discussions of recommended techniques and also provides specific design and technical standards. A copy of this document is available for review at Heidt Design, LLC.
29. The contractor will perform daily inspections of all on-site wetlands within the construction area to ensure that water levels within those wetlands are not excessively impounded prior to the time when the permitted control structure or outfall is built. Water levels significantly above normal should be corrected at a frequency that prevents a change in the vegetative character or health of any wetlands.

30. Prior to commencement of clearing & grubbing or any soil disturbance, contractor shall coordinate with Heidt Design to schedule a pre-construction soil erosion and sediment control inspection with the Pasco County Stormwater Management Division.



ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

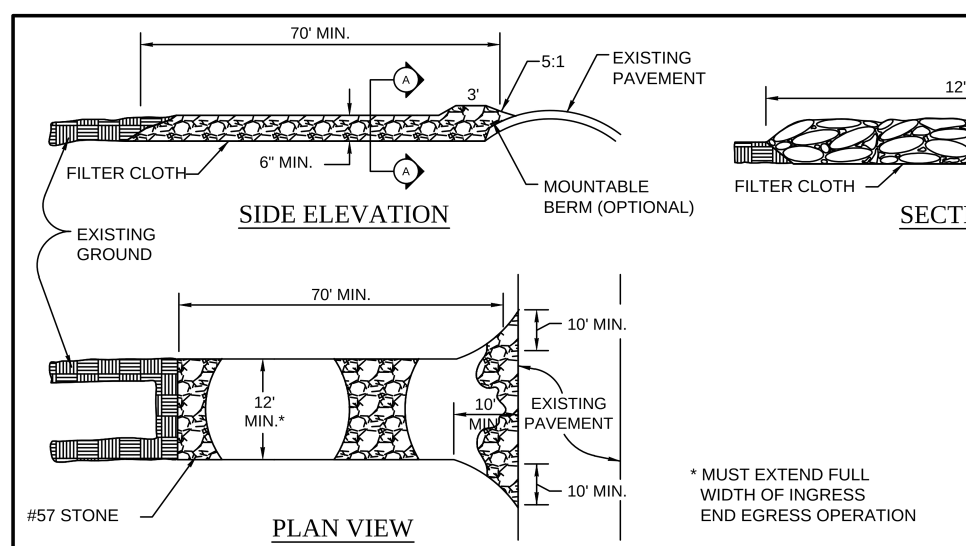
POND/LAKE EXCAVATION NOTE:

No excavation shall extend below the permitted design depths/elevations shown on the drawings, unless additional testing supports otherwise and the Engineer of Record has received verbal and/or written permission from the Water Management District. No lower semi-confining unit clayey soil material and/or no limestone materials shall be excavated, regardless if these materials are encountered within the permitted excavation depths/elevations. If any lower semi-confining unit clayey soil materials or limestone materials are encountered above the permitted depths/elevations, then excavation operations shall cease in the general area and the Engineer of Record shall be notified immediately.

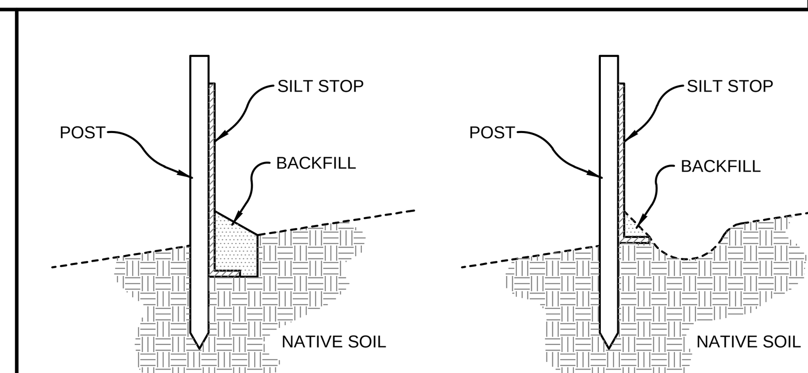
WETLANDS NOTE:

There are no wetland impacts proposed and therefore, no mitigation required.

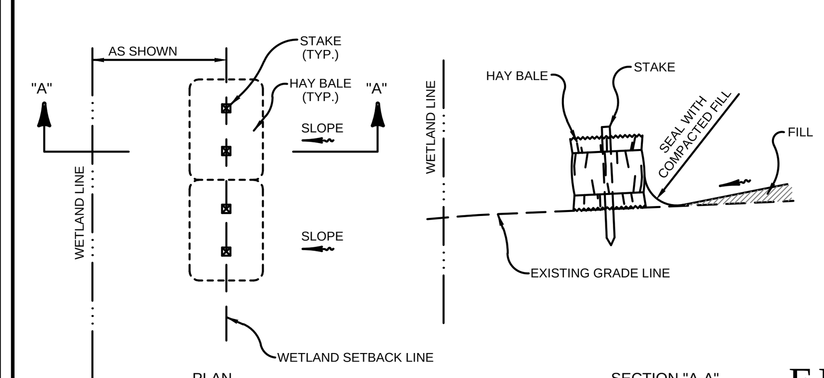
"Conservation Area" designation is given to all protected wetlands per Pasco County requirements. They are not designated as "Conservation Easements" for SWFWMD compensation.



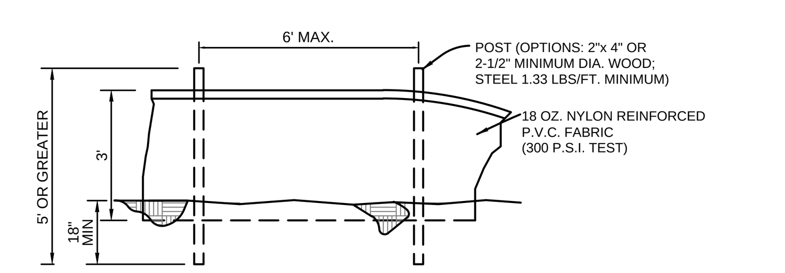
TYPICAL CONSTRUCTION ENTRANCE
NOT TO SCALE



METHOD OF INSTALLATION
SILT SCREEN
N.T.S.



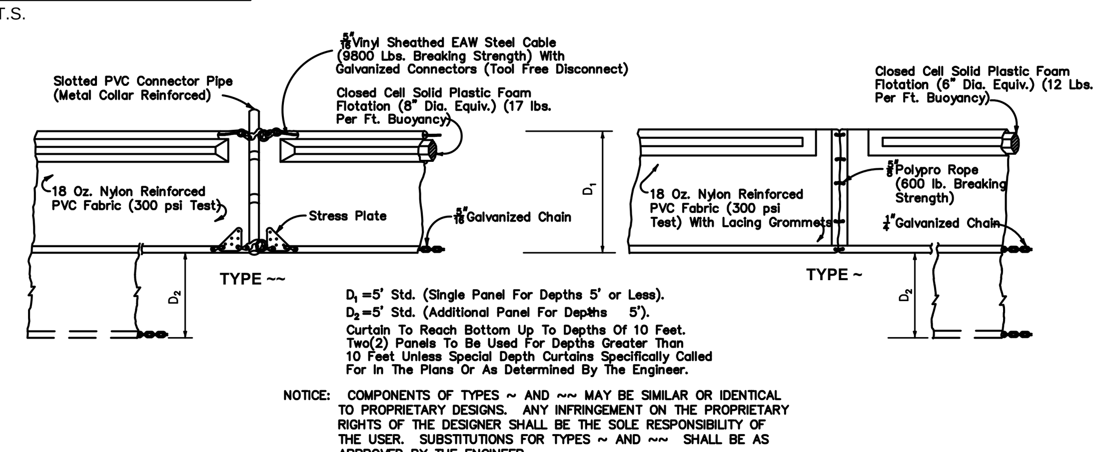
HAY BALE
N.T.S.



STAKED TURBIDITY BARRIER
N.T.S.

LEGEND

EPCWL	EPC WETLAND LINE
WCAS	WETLAND CONS. AREA SETBACK
COE	COE WETLAND LINE
·O·O·O·O·O·O·O·O·	SWFWMD PROJECT LIMITS (0.0 AC.)
·□·□·□·□·□·□·□·□·	STAKED EROSION CONTROL



D_1 =5' Std. (Single Panel For Depths 5' or Less).
D_2 =5' Std. (Additional Panel For Depths 5').
Curtain To Reach Bottom Up To Depths Of 10 Feet.
Two(2) Panels To Be Used For Depths Greater Than 10 Feet Unless Special Depth Curtains Specifically Called For In The Plans Or As Determined By The Engineer.

NOTICE: COMPONENTS OF TYPES ~ AND ~~ MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES ~ AND ~~ SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS

EROSION CONTROL DETAILS

NOTE:
THE EROSION BARRIERS, AS SHOWN, ARE NOT TO BE CONSTRUED TO MEAN THAT THEY ARE ALL THAT MAY BE REQUIRED. THE CONTRACTOR IS TO TAKE WHATEVER MEASURES NECESSARY TO CONTROL EROSION THROUGHOUT THE PROJECT.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

STARKEY RANCH
WELCOME CENTER

CONSTRUCTION SURFACE WATER MANAGEMENT PLAN

PREPARED FOR: WS-TSR, LLC

	DATE	DESCRIPTION
2	4/11/2014	COUNTY COMMENTS
	02/26/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1018
FILE:	CSWMP
DESIGN BY:	BUDEN
DRAWN BY:	BUDEN

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:_______________
REGISTRATION NO. 52717

C-900

R:\STARKEY RANCH\WELCOME CENTER\WORKING FILES\CURRENT DRAWINGS\CPICSWMP.DWG-C-900 2014/12/16 2:46 PM NATALIE BUDEN

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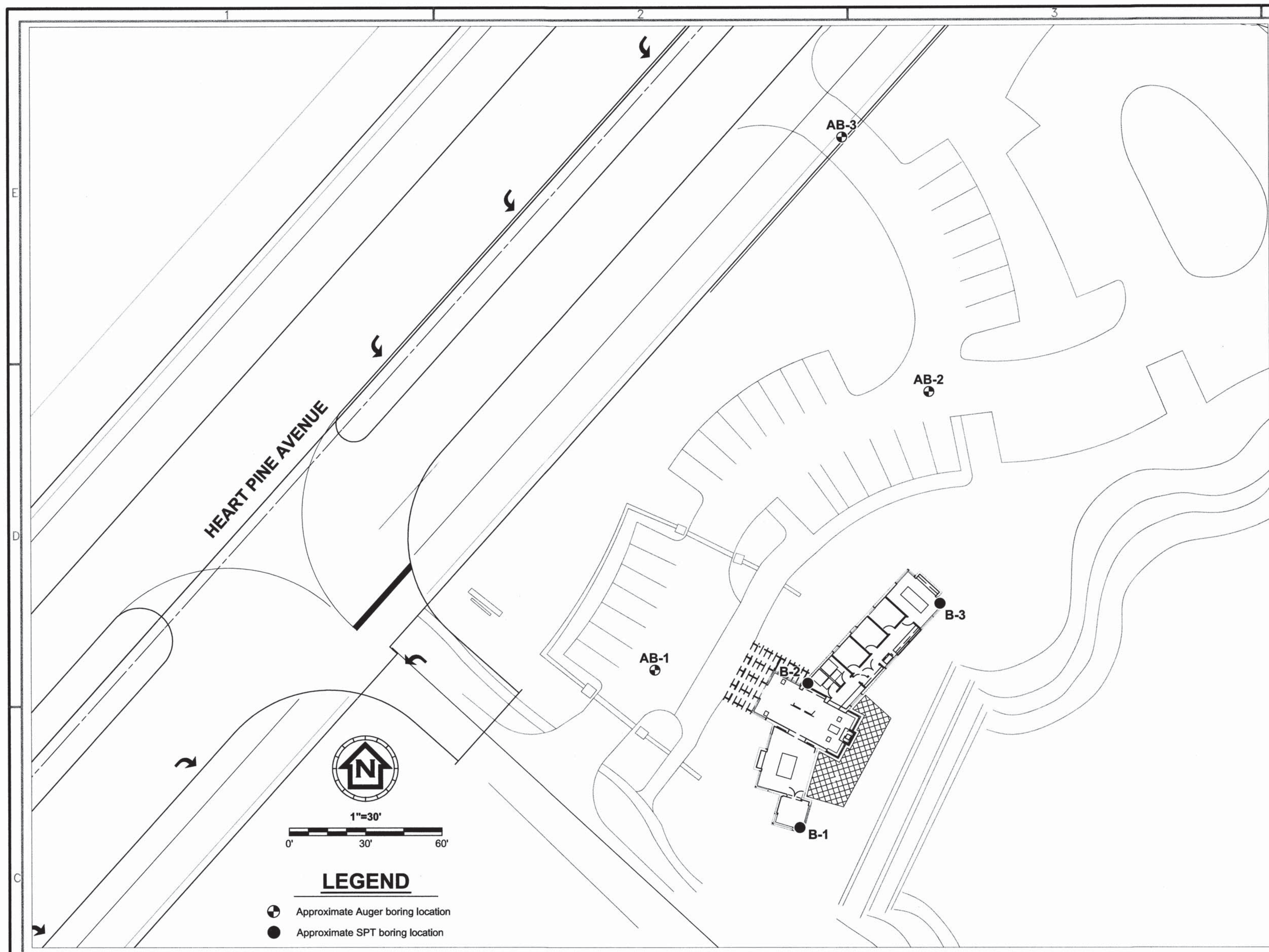

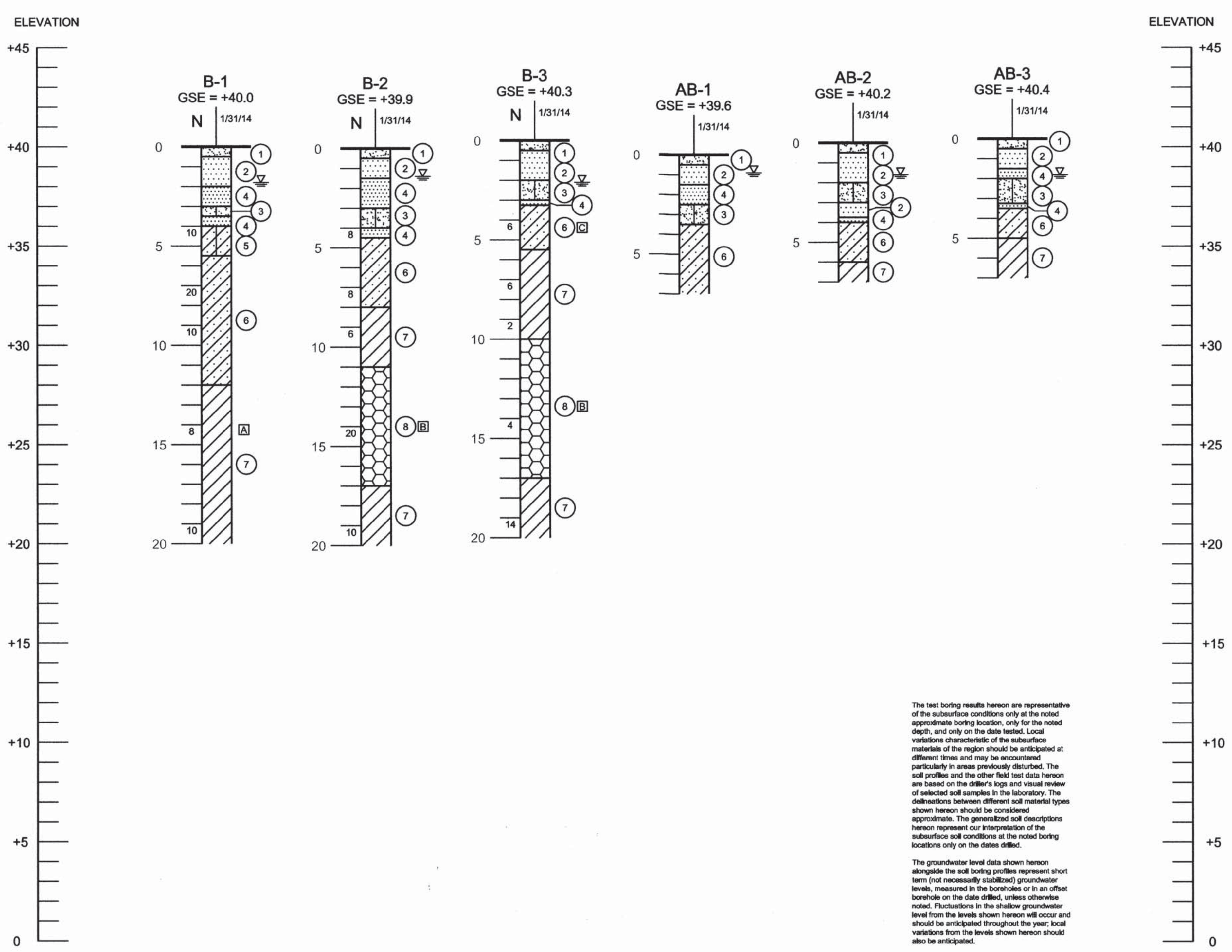

The test boring results hereon are representative of the subsurface conditions only at the noted approximate boring location, only for the noted depth, and only on the date tested. Local variations characteristic of the subsurface materials of the region should be anticipated at different times and may be encountered particularly in areas previously disturbed. The soil profiles and the other field test data hereon are based on the driller's logs and visual review of selected soil samples in the laboratory. The delineations between different soil material types shown hereon should be considered approximate. The generalized soil descriptions hereon represent our interpretation of the subsurface soil conditions at the noted boring locations only on the dates drilled.

The groundwater level data shown hereon alongside the soil boring profiles represent short term (not necessarily stabilized) groundwater levels, measured in the boreholes or in an offset borehole on the date drilled, unless otherwise noted. Fluctuations in the shallow groundwater level from the levels shown hereon will occur and should be anticipated throughout the year; local variations from the levels shown hereon should also be anticipated.

LEGEND

1. Gray to dark gray fine SAND to slightly silty fine SAND, trace organics (SP/SP-SM)
2. White to light brown fine SAND to silty fine SAND (SP/SP-SM/SM)
3. Brown or gray fine SAND to silty fine SAND (SP/SP-SM/SM)
4. Dark brown to reddish brown or black slightly silty fine SAND to silty fine SAND (SP-SM/SM)
5. Gray or brown silty to slightly clayey fine SAND (SM/SM-SC)
6. Gray or brown clayey SAND (SC)
7. Gray or brown to gray-green sandy CLAY to CLAY (CL/CH)
8. White or light gray weathered LIMESTONE

A Sand Seams
B Clay Seams
C Roots

Groundwater level, at time of field work

SP Unified Soil Classification group symbol as determined by visual review

N SPT "N" value in blows/foot

1/31/14 Date of fieldwork

+40.0 Ground Elevation per GeoPoint Surveying, Inc.

ENGINEERING EVALUATIONS AND RECOMMENDATIONS

Foundations

In general, all shallow footings will need to bear on properly improved (heavily compacted) natural sand subgrade or on properly placed and compacted cohesionless (sand) engineered/structural fill, free of deleterious debris, adequately tested for acceptance. Conventional shallow foundations consisting of perimeter wall footings and isolated pad footings should be suitable for support of the proposed 1-story (lightly loaded) structure, provided the stripped subgrade and foundation and slab subgrade are properly prepared, and assuming final level geotechnical/construction testing supports this assessment.

Any buried organic laden sands or buried deleterious fill/debris materials currently known or later discovered, are unacceptable beneath building pad/structure areas and pavement areas (and other structure areas); all these unsuitable organic/deleterious/debris materials need to be completely removed and replaced with acceptable structural fill materials (if necessary) properly compacted during land development activities, under geotechnical observation and testing. Also, all existing fills (if acceptable quality and no buried organics/debris) will need to be adequately compacted to at least 98% modified Proctor dry density (per ASTM D-1557) prior to building, pavement or slab construction.

The issue of shallow active/highly plastic clay (Stratum 7) within 7 feet (+/-) of building foundation elements warrants consideration by the project architect and the project structural/civil engineers when selecting finished building pad grades. It is generally accepted practice that building shallow foundation elements should be at least 7 feet (or more) above the top of the on-site highly plastic/active clay layer (Stratum 7), to minimize the risk of unacceptable post-construction foundation movements related to shallow plastic clay activity; even with some increased structure resistance to minor cosmetic wall cracking incorporated into design and construction. Based on our review of the Mass Grading Plans (dated 8/26/13), prepared by HD, the nearby area (and presumably the subject area) will be mass graded to approximately elevation +44 (+/-); this should minimize the impact of the shallow plastic clay issue.

Assuming proper subgrade preparation/compaction, and proper fill placement/compaction (as required), the building footings could be proportioned using a maximum net allowable soil bearing pressure of 2,500 psf (in excess of overburden). All footings should bear on properly compacted natural sand subgrade or on (or within) properly placed and compacted cohesionless (sand) structural fill.

All footings should be embedded no less than 16 inches below adjacent compacted grade on all sides. Strip or wall footings should be a minimum of 18 inches wide and square pad footings a minimum of 2 feet square. These minimum footing sizes should be used regardless of whether or not the foundation loads and allowable bearing pressures dictate a smaller size. These minimum footing sizes tend to provide adequate bearing area that should account for minor variations in the bearing materials. Foundations so designed and supported on materials prepared as described later in this report should experience total settlements of 1-inch or less; differential settlements should be about ½ of the total settlement. If any individual column loads exceed 75 kips or if any wall loads exceed 4.0 ksf, we should be consulted for additional evaluation. The above settlements are generally considered acceptable; however, this must be confirmed by the project structural engineer.

Pavement Considerations

Considering the shallow soil and groundwater conditions herein, we recommend that the proposed pavement areas be constructed with either a soil cement base course or a crushed concrete aggregate base course. Whether or not a stabilized subgrade (LBR 40) is necessary beneath either base course will depend upon final pavement design by HD and County requirements. Some pavement underdrain per County requirements should be anticipated. With either base course referenced above, pavement grades should be selected by HD such that there is at least 18 inches of separation between the bottom of the base and the anticipated normal wet season high groundwater level. A soil cement base, if used as the base course alternate, should meet PCA and Pasco County requirements, should have a 300 psi 7-day compressive strength, and should be compacted to a minimum of 98% of AASHTO T-134; 7-day compressive strengths in excess of 400 psi should be avoided. If crushed concrete aggregate is used as the base course in lieu of soil cement, the crushed concrete material should have a minimum limerock bearing ratio (LBR) of 150, should have a minimum compacted dry density of 114.0 pcf, should generally meet FDOT grain size criteria for a graded aggregate base, should be free of all deleterious materials, and should be compacted to a minimum of 98% of the maximum modified Proctor dry density in accordance with AASHTO T-180. If crushed concrete is used, then we recommend that the proposed crushed concrete aggregate borrow source be evaluated by our office prior to any material arriving on-site. The actual pavement thickness design should be performed by the project civil engineer (HD) considering traffic loadings and volume data, and Pasco County standards.

Fill Placement and Subgrade Preparation

The following are our general recommendations for overall site preparation and mechanical densification work for the proposed building pad area and pavement/parking areas, based on the anticipated construction and our test boring data on Plate 2. These general recommendations need to be incorporated into the project design and general specifications prepared by the design engineer or architect.

1. The building pad area and pavement/parking areas (including all appurtenance structure and slab areas) plus a ten (10) foot margin beyond the perimeter foundation or edge of pavement/slab, should be stripped and cleared of all surface vegetation, topsoils, roots, organics, and all debris, etc. A qualified representative from an experienced geotechnical engineering firm should observe the stripping/clearing operations to verify that all stripped/exposed subgrades are acceptable prior to filling (if necessary).

2. The stripped building pad areas (including all appurtenance areas), and all pavement areas should be leveled sufficiently to permit equipment traffic, and then proof-rolled (20 overlapping passes) using a large diameter, self-propelled or tractor drawn vibratory drum roller, under geotechnical observation. Careful observations should be made during proofrolling to identify areas of soft or yielding soils that may require over excavation and replacement, as directed in the field by the geotechnical consultant.

3. Subgrade compaction should continue until a minimum density requirement of 98% of the maximum modified Proctor dry density established in accordance with ASTM D-1557, is achieved to a depth of 1 foot below the stripped ground surface, as determined by field density (compaction) tests within all the building/structure footprint area (and pavement areas), prior to any filling. The contractor must select and operate their compaction equipment such that no adjacent structures/pipelines are adversely impacted.

4. Following satisfactory completion of the initial compaction of the stripped areas, the building area and pavement areas (including all appurtenance areas) may be brought up to finished subgrade levels (if necessary) in 1-foot lifts. New fills should consist of approved fine sands (Strata 2-4) with less than 15% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable materials. Fill materials should be tested and approved prior to acquisition. Approved sand fill material should be placed in loose lifts not exceeding 12 inches in thickness up to the finished subgrade levels, and should be compacted to a minimum of 98% of the maximum dry density as determined by the modified Proctor test (ASTM D-1557) in the building pad area and pavement areas (including all appurtenance areas). Density tests to confirm compaction should be performed in each 12-inch lift of fill, prior to subsequent placement of fill lifts. The subgrade soils at the finished floor slab level, after below ground conduit installations, should be recompacted and tested to 12 inches deep, to a minimum of 98% of ASTM D-1557.

5. The bottom of the building/structure foundation excavations should be re-compacted (and density tested) after excavation to densify any soils loosened in the excavation process. Each pad/isolated footing should be density tested, and every 40 l.f. of wall footing should be density tested, to check for a minimum of 98% modified Proctor compaction per ASTM D-1557. Backfill soils placed adjacent to footings or walls should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills placed in footing excavations below and above the bearing level, in all utility excavations, and in other areas which are expected to provide support or foundation embedment constraint, should be placed in loose lifts not exceeding 12 inches and should be compacted to a minimum of 98% of the maximum modified Proctor dry density.

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STARKEY RANCH - VILLAGE 1 WELCOME (SALES) CENTER
GEOTECHNICAL DATA AND REQUIREMENTS

PREPARED FOR: WHEELOCK STREET CAPITAL

1	00/00/0000	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	13-10-07897
FILE:	SEE FILE TAG BELOW
DESIGN BY:	MTG
DRAWN BY:	DNH

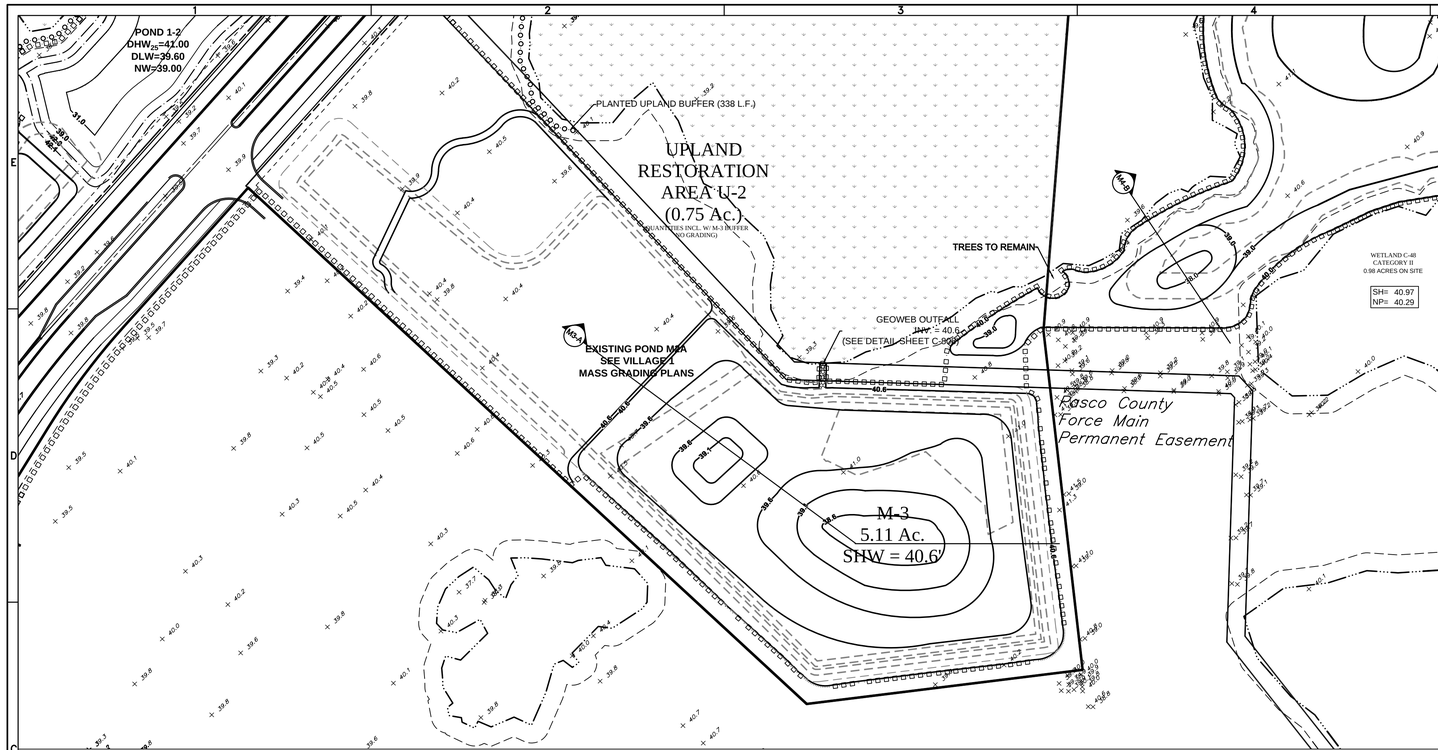
FLORIDA PROFESSIONAL ENGINEER

MICHAEL T. GAGNE LICENSE No. 63006 STATE OF FLORIDA PROFESSIONAL ENGINEER

MICHAEL T. GAGNE
DATE:
REGISTRATION NO. 63006

B-100

Z:\DRAFTING AND AIRIALS\EMAIL PLANS\GEOTECH PLANS\STARKEY RANCH\7897_LAYOUT-PLANNING-2004 (1)_MEI_DITCH.DWG, B-100, 2/25/2014 11:30:20 AM



N

0 100 200

GRAPHIC SCALE: 1" = 100'

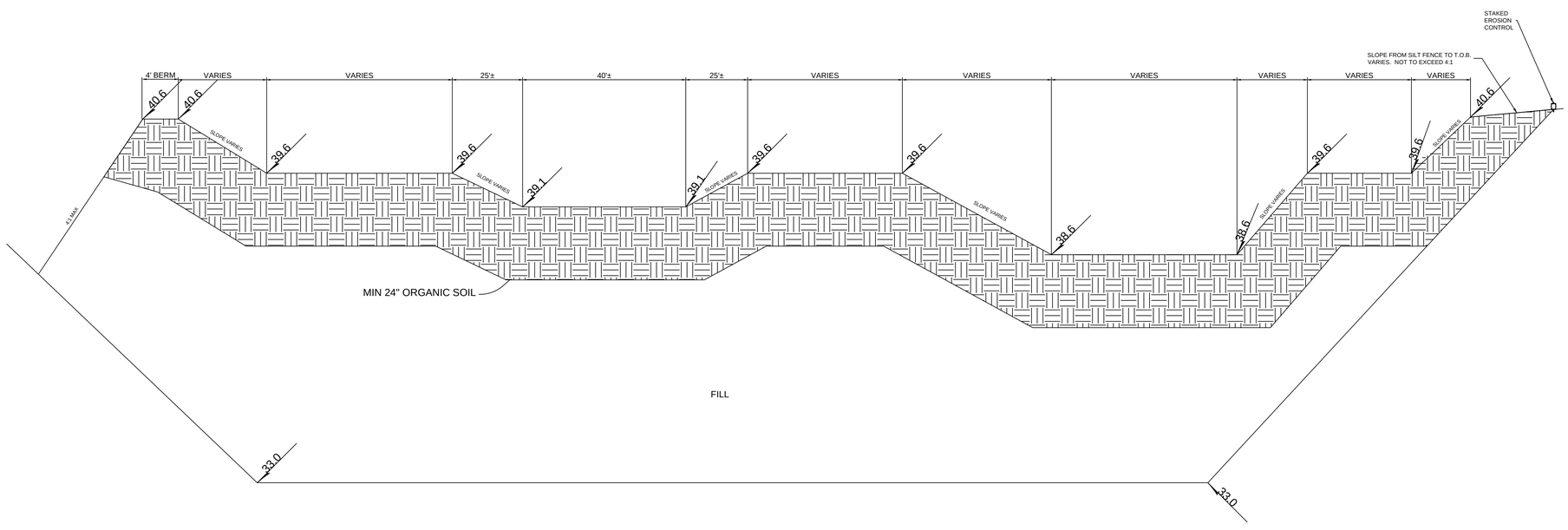
ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

GENERAL LEGEND

- WL — WETLAND LINE
- WCAS — WETLAND CONS. AREA SETBACK
- STAKED EROSION CONTROL (LIMITS OF CONSTRUCTION)
- PROPERTY LINE
- RIGHT-OF-WAY
- PLANTED UPLAND BUFFER

DRAINAGE & GRADING LEGEND

EXISTING	PROPOSED	
		STORM DRAINAGE STRUCTURE
(10)	S-100	STRUCTURE NO.
+ 15.00	15.00 OR 15.00	SPOT ELEVATION
15	15.00	CONTOUR



SECTION M3-A

NOT TO SCALE

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Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28762
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STARKEY RANCH VILLAGE 1
PHASES 1-5

WETLAND MITIGATION PLAN

PREPARED FOR: WS-TSR, LLC

	DATE	DESCRIPTION

	DATE	DESCRIPTION
1	01/17/2014	REVIEW SUBMITTAL

PROJECT NO:	TSR-SR-1011
FILE:	MIT
DESIGN BY:	PANICO
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-803

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MITIGATION PLANTING LIST

CATEGORY/PLANTING	PLANTING RANGE	M1 17.63 ac	M2 9.79 ac	M3 5.10 ac	M4 11.66 ac	M5 1.75 ac	M6 3.21 ac	M7 5.06 ac	M8 4.32 ac	M9 A&B 0.47 ac
HERBS										
PICKERELWEED (PONTEDERIA CORDATA)	M,L	25,250	14,700	7,350	16,800	2,520	4,860	7,350	6,225	810
ARROWHEAD (SAGITTARIA LANCIFOLIA)	M,L	8,425	2,900	2,450	5,600	840	1,620	2,450	2,075	270
SOFT RUSH (JUNCUS EFFUSUS)	U,M	6,325	3,680	1,840	4,200	630	1,215	1,840	1,560	205
MAIDENCAINE (PANICUM HEMITOMON)	U,M,L	12,625	7,350	3,675	8,400	1,260	2,430	3,675	3,115	405
CORDGRASS (SPARTINA BAKERI)	U,M	8,425	4,900	2,450	5,600	840	1,620	2,450	2,075	270
PASPALUM (PASPALUM DISTICHUM)	U,M	12,625	7,350	3,675	8,400	1,260	2,430	3,675	3,115	405
YELLOW CANNA (FLACCIDA)	U	4,200	2,450	1,225	2,800	420	810	1,225	1,040	135
SOFT STEM BULRUSH (SCIRPUS SPP)	M	6,325	3,680	1,840	4,200	630	1,215	1,840	1,560	205
SUBTOTAL		84,200	47,010	24,505	56,000	8,400	16,200	24,505	20,765	2,705
SHRUBS										
BLACKHAW (VIBURNUM OBOVATUM)	M,L	875	510	255	585	90	170	255	220	30
FETTERBUSH (LYONIA LUCIDA)	U	875	510	255	585	90	170	255	220	30
BUTTONBUSH (CEPHALANTHUS OCCIDENTALIS)	M,L	1,300	770	385	880	135	255	385	330	45
ST. JOHN'S WOORT (HYPERICUM FASICULATUM)	U,M	1,300	770	385	880	135	255	385	330	45
SUBTOTAL		4,350	2,560	1,280	2,930	450	850	1,280	1,100	150
TREES										
AMERICAN ELM (ULMUS AMERICANA)	M,L	2,300	740	370	840	130	245	370	315	45
RED MAPLE (ACER RUBRUM)	U	2,300	740	370	840	130	245	370	315	45
BALD CYPRESS (TAXODIUM DISTICHUM)	M,L	2,525	1,470	735	1,680	255	490	735	625	85
LAUREL OAK (QUERCUS LAURIFOLIA)	*U	850	490	245	560	90	165	245	210	30
SWEETGUM (LIQUIDAMBAR STRYACIFLUA)	U	2,300	740	370	840	130	245	370	315	45
POP ASH (FRAXINUS CAROLINIANA)	U,M	2,300	740	370	840	130	245	370	315	45
SUBTOTAL		12,575	4,920	2,460	5,600	865	1,635	2,460	2,095	295
BUFFER (SPECIFIC TO EACH SITE)										
WAX MYRTLE (MYRICA CERIFERA)	**BUFFER	300	400	100	200	60	100	100	120	80
SLASH PINE (PINUS ELLITOTTI)	**BUFFER	250	600	150	240	50	100	70	100	40
SUBTOTAL		550	1,000	250	440	110	200	170	220	120

* TO BE PLANTED ADJACENT TO UPLAND BUFFER.

** WOODY BUFFERS WILL BE PLANTED IN AREA ADJACENT TO DEVELOPMENT AND/OR EXPOSED ABOVE SHW. WITH THE PLANTS LISTED ABOVE. THEY WILL BE 50% THREE-GALLON and 50% ONE GALLON SIZE POTS AND WILL RESULT IN AN OVERALL OF ONE PLANT PER 5' ON CENTER. THEY WILL BE PLANTED JUST ABOVE THE ESTIMATED SEASONAL HIGH WATER LEVEL. THIS IS IN ADDITION TO "BUFFER ENHANCEMENT AREAS" AND IS INTENDED TO BE AREAS GRADED TO MEET ADJACENT GRADES ABOVE SHW.

SUCCESS CRITERIA:

- ALL SITES ARE FORESTED AND SHALL BE MAINTAINED AND MONITORED FOR 5 YEARS.
- COVERAGE OF HERBACEOUS SPECIES SHALL BE 85% MINIMUM AND FORESTED SHALL BE 50% MINIMUM.
- SHRUBS ARE PROVIDED FOR HABITAT DIVERSITY ONLY.

RELATIVE PLANTING RANGE

RANGE	M1 ELEVATIONS	M2 ELEVATIONS	M3 ELEVATIONS	M4 ELEVATIONS	M5 ELEVATIONS	M6 ELEVATIONS	M7 ELEVATIONS	M8 ELEVATIONS	M9 ELEVATIONS
U = UPPER RANGE	38-39	38-39	39.6-40.6	39-40	38.7-39.7	38.7-39.7	37.0-38.0	37.0-38.0	38.5
M = MIDDLE RANGE	37.5-38	37-38	39.1-39.6	38-39	38.1-38.7	38.1-38.7	36.5-37.0	36.5-37.0	37.5-38.5
L = LOWER RANGE	37.5	37	38.6-39.1	38	38.1	38.1	36.5	36.5	37.5

The upland buffer enhancement areas (-o-o-o-) shall consist of:

Trees 1 per 10'
Shrubs 2 per 10'

Planted in grouping - not rows:

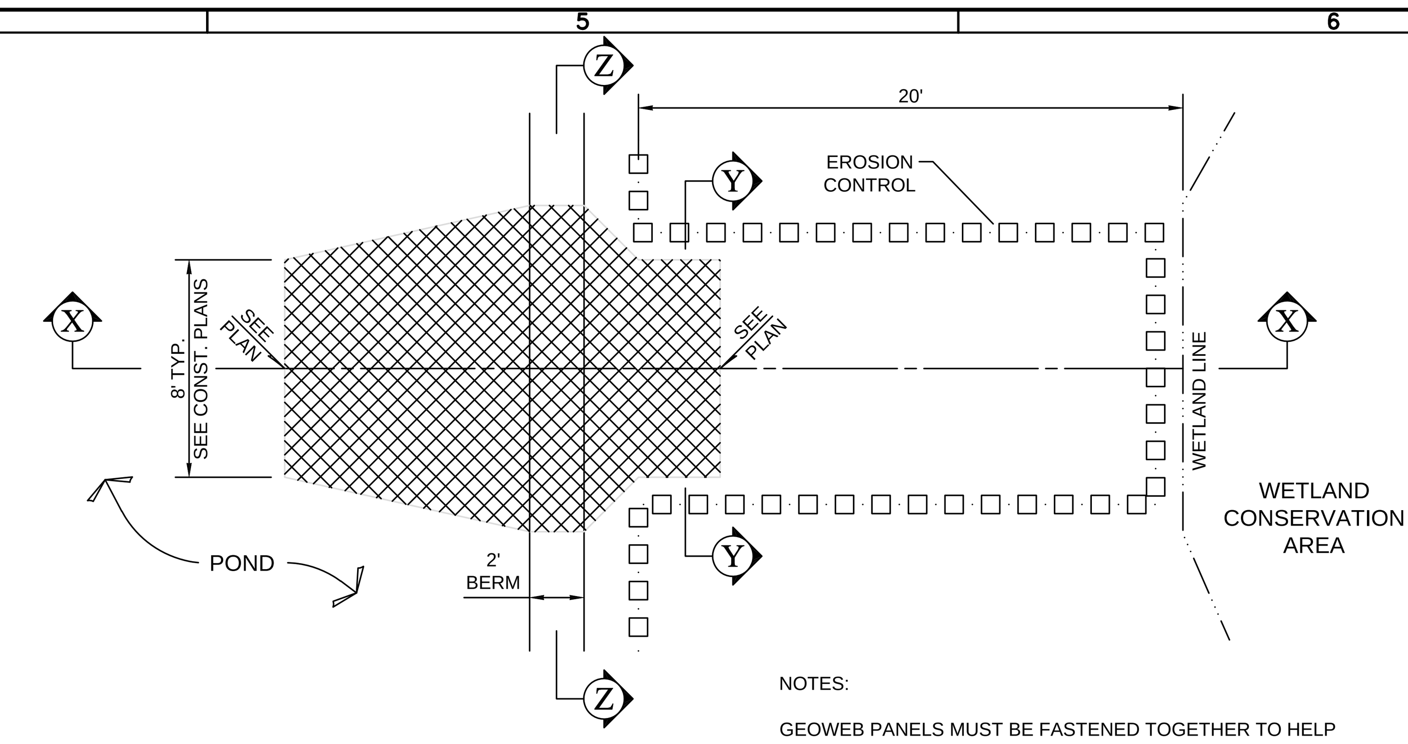
With no more than 50% Pine
With no more than 50% Wax Myrtle

Species chosen shall be the best suitable for location and may consist of:

Trees: American Holly, Sweetgum, Red Maple, Slash Pine, Laurel Oak

Shrubs: Firebush, Dogwood, Walters Viburnum, Palmetto, Fetterbush

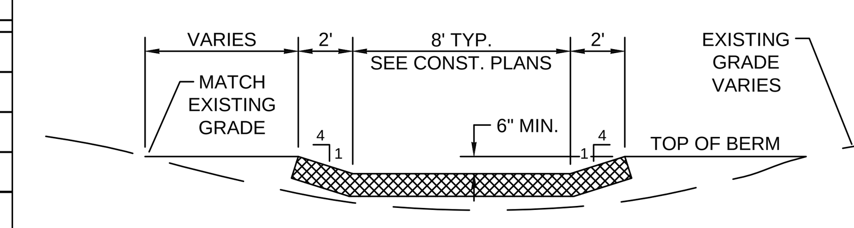
All planting shall be coordinated with project biologist.



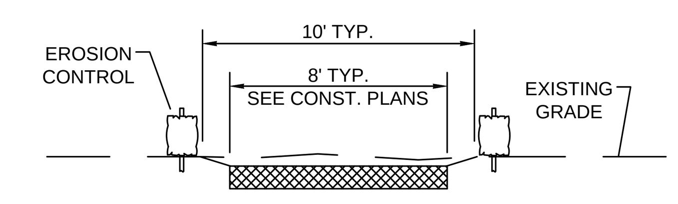
GEOWEB TYPICAL DETAIL
NTS

NOTES:

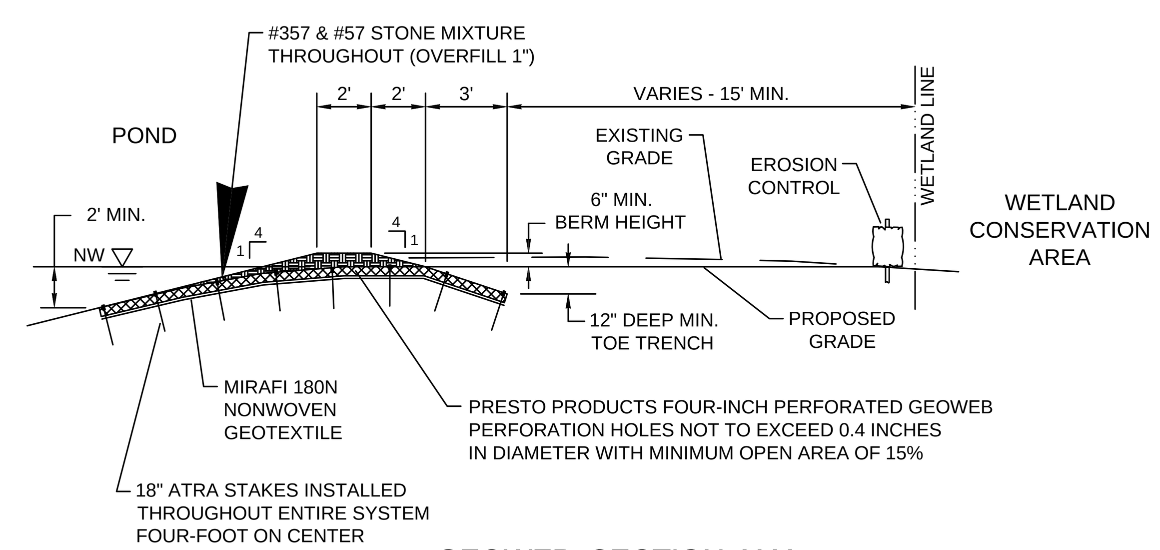
GEOWEB PANELS MUST BE FASTENED TOGETHER TO HELP PREVENT UNWANTED SEPARATION DURING INFILLING AND FOR LONG TERM SYSTEM INTEGRITY. A PNEUMATIC STAPLE GUN OR HAND HELD PLIERS AND LOC RINGS CAN BE USED FOR THIS PURPOSE. EACH CELL SHALL HAVE ONE FASTENER.



SECTION Z-Z
NTS



SECTION Y-Y
NTS



GEOWEB SECTION X-X
NTS

MISCELLANEOUS MITIGATION NOTES:

Plants will be installed in random patterns at the contractor's discretion unless otherwise directed by the plans or by the mitigation designer.

The Mitigation areas will be considered as conservation areas.

Plants will be installed at elevations most conductive for their development.
Estimated planting ranges are depicted on the attached list.

The Mitigation areas will be completed and planted within 120 days following initial wetland impact.

Grades and slopes shown on the mitigation areas may be field altered to insure that water levels will be achieved which result in optimal plant survival and habitat value. However, grade changes must be approved by mitigation designer. Hand dug swales may be neccessary to hydrologically connect mitigation areas to adjacent wetlands. If needed, these are to be field located by designer.

Minimum plant sizes:
Herbs: 4" potted material or bare root equivalent.
Shrubs: One gallon pots
Trees: Three gallon pots
Three gallon trees will be a minimum of 3' in height at the time of planting.

Potted, nursery grown material will be used, unless otherwise approved in advance.
Plants will be as shown on the attached list.

This forested mitigation area will receive trees on 10 foot centers, shrubs on 12 foot centers and herbs on 4 foot centers.

This herbaceous mitigation area will receive herbs on 3 foot centers.
Five percent of this total will be shrubs and trees to increase vegetative diversity. The woody plants will be installed in clumps.

The contractor will attempt to have organic material of at least 12", if available. The contractor will provide a suitable substrate on which to allow plant development. There will be at least 24 inches of sandy, non-clay soil at the mitigation areas above the clay layer.

Mitigation Areas include any planted buffers are to be fenced following planting in order to keep cattle out.

MITIGATION MONITORING & MAINTENANCE NOTES

All the following items will be included in the mitigation monitoring and maintenance program.

A. Monitoring and maintenance will be performed for a minimum of 3 years for herbaceous areas and 5 years for the forested areas. Maintenance will occur monthly for year one and quarterly for years two and three and semi annually thereafter as needed. Monitoring will be done semi-annually and reported annually.

Monitoring reports will be submitted to SWFWMD and to COE within 30 days following the monitoring event at the annual anniversary.

At a minimum, monitoring reports will address:

a. Percent survival of planted species.
b. Number of plants replanted if necessary to meet 85% and when they were planted.
c. Water quality
1) Visual observations
2) Lab data if necessary, i.e., salinity, conductivity, PH, etc.
d. Total %coverage of vegetation
e. Plant diversification and natural recruitment (list species present)
f. Depth of water at monitoring event
g. Soil stabilization measures used
h. Permanently marked photo stations
i. Wildlife usage
j. Overall ecological evaluation
k. Problems encountered and corrective actions taken or needed
l. Date planted and number of planted materials used

B. Maintenance shall mean the removal of nuisance or exotic species. Nuisance species coverage must not exceed 5% (cattails, willows, Ludwigia peruviana, water hyacinths, Sesbania spp. dogfennel, Brazilian pepper, etc.).

C. Survival must be guaranteed for each planted species. The area will be replanted annually if species survivorship falls below 85%. 50% plant cover will be achieved at the end of year one, 75% by the end of year two and 85% plant cover of non-nuisance wetland species will be achieved by the end of the third year. Replanting may be needed to achieve these values. No more than 10% of the total area coverage shall be upland or nuisance species.

D. Monitoring and maintenance will continue until SWFWMD permitted success criteria are achieved. Reconstruction of the site design may be necessary to achieve functioning wetlands.

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Landscape Architecture Certificate of Authorization No. LC26000405
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STARKEY RANCH VILLAGE 1
PHASES 1-5

WETLAND MITIGATION PLAN

PREPARED FOR: WS-TSR, LLC

1	01/17/2014	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO: TSR-SR-1011
FILE: MIT
DESIGN BY: PANICO
DRAWN BY: FRANCIS

FLORIDA PROFESSIONAL ENGINEER
GARY D. MILLER
DATE:
REGISTRATION NO. 52717

C-808

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S T A R K E Y R A N C H

WELCOME CENTER

C O D E L A N D S C A P E P L A N S

Prepared For WS-TSR, LLC

FEBRURARY 26, 2014

△1 Revised April 10, 2014

△2 Revised August 15, 2014

△3 Revised November 18, 2014

Date:	02/26/14
Drawn by:	DS
Reviewed by:	JG
Job Number:	21313.21

Revision:	Date:

STARKEY RANCH WELCOME CENTER

Pasco County, Florida

WS - TSR, LLC

5900 Imperial Lakes Drive, Mulberry, FL 33860

DIX.HITE + PARTNERS

150 W. JESUP AVENUE
LONGWOOD, FLORIDA
TEL 407.667.1777
FAX 407.667.1779

CODE LANDSCAPE PLANS

Sheet Number:

"D" BUFFER REQUIREMENTS:
126 LINEAR FEET OF BUFFER
(1 TREE/30' O.C.)=
172/30=4 TREES
5 SHRUBS PER TREE
5x7=30 SHRUBS

PROVIDED:
4 TREES
1609 SF SHRUBS (70%)
689 SF SOD (30%)
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

"D" BUFFER REQUIREMENTS:
205 LINEAR FEET OF BUFFER
(1 TREE/30' O.C.)=
205/30=7 TREES
5 SHRUBS PER TREE
5x7=35 SHRUBS

PROVIDED:
7 TREES
3160 SF SHRUBS (70%)
1355 SF SOD (30%)
3' MASONRY WALL TO SCREEN
VIEWS OF CARS.
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

FDOT SIGHT LINE:
35 MPH SPEED
390 L.F. SIGHT DISTANCE
2 LANE DIVIDED

30'X30' SIGHT
TRIANGLES, TYP.

1 ADDITIONAL LIVE OAK AS REQUIRED FOR
WELCOME CENTER ROW BUFFER

2 PO

4 PE

SHADE TREE, TYP

SHRUBS & GROUNDCOVER, TYP

5 AR

7 AR

16 VOD AROUND
BACKFLOW/UTILITY
EASEMENT

3'-0" HIGH
MASONARY WALL
(IN PLACE OF BERM)

FDOT SIGHT LINE:
35 MPH SPEED
390 L.F. SIGHT DISTANCE
2 LANE DIVIDED

30'X30' SIGHT
TRIANGLES, TYP.

HARDSCAPE — TURF

9 QV

STORM SEWER PIPE

4 MG

TOTAL VUA AREA=28,520 S.F.
REQUIRED VUA LANDSCAPE AREA=2,852 S.F.
REQUIRED VUA SHADE TREES=15

PROVIDED VUA LANDSCAPE AREA=7,017 S.F.
PROVIDED VUA SHADE TREES=18
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

NOTE:
- MINIMUM 1 LANDSCAPE ISLAND PER 10 PARKING SPACES HAS BEEN PROVIDED.
- A MINIMUM OF 1 SHADE TREE WITH SHRUBS HAS BEEN PROVIDED PER ISLAND.
- ALL TREES ARE SET BACK MINIMUM 4' BACK FROM DRIVE ISLE.
- ALL TERMINAL ISLANDS ARE MINIMUM OF 9' LONG X 8' WIDE.

CMU MONUMENT SIGN

WELCOME CENTER
FIRST FLOOR
3,279 SF
356 L.F. PERIMETER

42 VOD

3 QS

"A" BUFFER REQUIREMENTS:
60 LINEAR FEET OF BUFFER
(1 TREE/60' O.C.)=
60/60=1 TREE
10 FEET WIDE LANDSCAPE BUFFER
3' MASONRY WALL IN PLACE OF EVERGREEN
HEDGE TO SCREEN VIEWS OF CARS

PROVIDED:
1 TREE
387 SF SHRUBS (70%)
157 SF SOD (30%)
10 FEET WIDE LANDSCAPE BUFFER WITH
18" HIGH CONTINUOUS EVERGREEN HEDGE
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

ALL LANDSCAPE TO ADHERE TO
7 ½' CLEAR DISTANCE AROUND
FIRE HYDRANTS, TYP.

"A" BUFFER REQUIREMENTS:
118 LINEAR FEET OF BUFFER
(1 TREE/60' O.C.)=
118/60=2 TREES
10 FEET WIDE LANDSCAPE BUFFER
WITH CONTINUOUS 18" HIGH EVERGREEN
HEDGE.

PROVIDED:
2 TREES
864 SF SHRUBS (70%)
370 SF SOD (30%)
10 FEET WIDE LANDSCAPE BUFFER WITH
18" HIGH CONTINUOUS EVERGREEN HEDGE
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

BUILDING PERIMETER LANDSCAPE REQUIREMENTS
MINIMUM 5' WIDE LANDSCAPE AREA
178 LINEAR FT. (50% BLD. PERIMETER)
330 S.F. PLANTING AREA (10% BLD. FLOOR PLAN)
2 TREES

PROVIDED:
MINIMUM 5' WIDE LANDSCAPE AREA
190 LINEAR FT.
1,248 S.F.
2 TREES
SHRUB AND GROUNDCOVER MASSING
IS A NATIVE MIX.
(SEE PLANT LIST, SHEET L2.00)

ROADWAY NOTE:
HEART PINE AVENUE
-142' R.O.W.
-TYPE F CURB
NOTE: REFER TO CIVIL PLANS FOR ALL ROADWAY
CROSS SECTIONS AND CURB INFORMATION

FDOT SIGHT LINE:
35 MPH SPEED
390 L.F. SIGHT DISTANCE
2 LANE DIVIDED

LANDSCAPE NOTES:

+ LANDSCAPE PLANS TO FOLLOW PASCO COUNTY GUIDELINES, FULL IRRIGATION PLANS TO BE PROVIDED IN THE FUTURE ALONG WITH ANY ENHANCEMENTS MADE TO THE OVERALL CODE LANDSCAPE PLANS.

+ STREET TREES TO BE INSTALLED BY BUILDER AT TIME OF THE LOT CONSTRUCTION.

SCALE: 1" = 20'

0 20 40

EXISTING CONDITION AT WETLAND

WETLAND EDGE

25' WETLAND SETBACK

Date:	02/26/14
Drawn by:	DS
Reviewed by:	JG
Job Number:	21313.21

Revision:	Date:
1	04/10/14
2	08/15/14
3	11/18/14

STARKEY RANCH WELCOME CENTER

Pasco County, Florida

WS - TSR, LLC
5900 Imperial Lakes Drive, Mulberry, FL 33860

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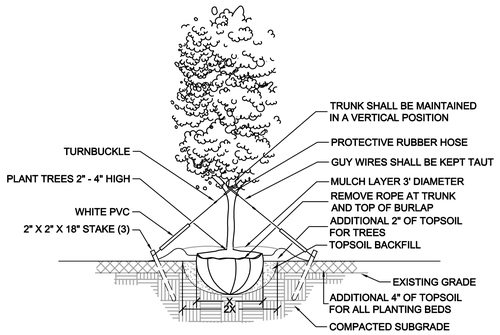
FAX 407.667.1779

CODE LANDSCAPE PLANS

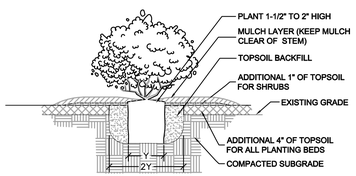
Landscape Plan

Sheet Number:
L1.00



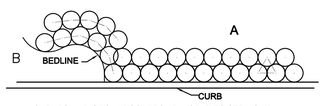
TYPICAL TREE PLANTING

CROSS SECTION - N.T.S.



TYPICAL SHRUB PLANTING

CROSS SECTION - N.T.S.



A SHRUBS AND GROUNDCOVERS ADJACENT TO STRAIGHT EDGES SHALL BE TRIANGULAR - SPACED IN ROWS PARALLEL TO THE STRAIGHT EDGE.

B SHRUBS AND GROUNDCOVERS ADJACENT TO CURVED EDGES SHALL BE PLANTED IN ROWS PARALLEL TO THE CURVED EDGE. CURVED EDGES TO BE VERY SMOOTH RADII.

TYPICAL SHRUB LAYOUT

PLAN - N.T.S.

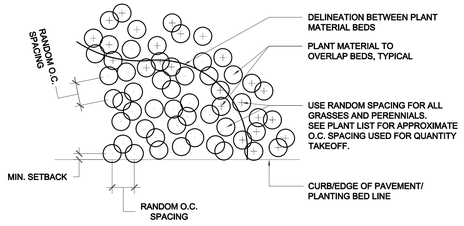
NOTES:
1. THE CONTRACTOR SHALL LAYOUT A TEST AREA WITH TWO DIFFERENT PLANT MIXES ADJOINING FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

2. THE PERIMETER OF ALL ALIGNING PLANTING BEDS SHALL OVERLAP RANDOMLY INTO NEIGHBORING BEDS.

3. INTERIOR PORTIONS OF EACH BED SHALL BE PLANTED AT APPROPRIATE AVERAGE SPACING ACCORDING TO THE PLANT LIST.

4. SOME SELECT SPECIES WILL BE PLANTED ON REGULAR TRIANGULATED SPACING AS DIRECTED BY LANDSCAPE ARCHITECT.

5. SETBACKS ARE APPLICABLE TO ALL HARDSCAPE ITEMS:
-18" MIN. SETBACK FOR SHRUBS
-12" MIN. SETBACK FOR GROUNDCOVERS



RANDOM SHRUB LAYOUT

PLAN - N.T.S.

Starkey Ranch Welcome Center Plant Palatte

4/10/2014

Quantity	Symbol	Botanical Name	Common Name	Size & Specification	Approx SF	Drought Tolerance	Native	Percentage
34	**Canopy Trees**			**2" Cal. Min., 6' Ht. Min.**				
12	AR	*Acer rubrum 'Florida Flame'*	Red Maple	45 Gal., 4" Cal., (3" DBH), Full, Healthy	NA	Moderate	Yes	35.29%
4	PE	*Pinus elliottii densa*	South Florida Slash Pine	30 Gal., 3" Cal., (2" DBH), Full, Healthy	NA	Moderate	Yes	11.76%
9	QV	*Quercus virginiana*	Live Oak	65 Gal., 4" Cal., (3" DBH), Full, Healthy	NA	High	Yes	26.47%
4	MG	*Magnolia grandiflora*	Magnolia	65 Gal., 3" Cal., (2" DBH), Full, Healthy	NA	Moderate	Yes	11.76%
2	PO	*Platanus occidentalis*	Sycamore	FG, 4" Cal., (3" DBH), Full, Healthy	NA	High	Yes	5.88%
3	QS	*Quercus shumardii*	Shumard Oak	65 Gal., 4" Cal., (3" DBH), Full, Healthy	NA	High	Yes	8.82%
	Native Shrubs/Grasses/Groundcover/Accent Plants (Minimum 50% coverage)							
59	BF	*Bulbine frutescens 'Hallmark'*	Orange Bulbine	4" Pots, Full, 24" O.C.	0.25	High	No	2%
65	FS	*Feijoa sellowiana*	Pineapple Guava	3 Gal., Full, 3' O.C., Min 18" Ht. at time of installation	9	High	No	5%
189	IVN	*Ilex vomitoria 'Schillings'*	Dwarf Yaupon Holly	1 Gal., Full, 30" O.C., Min 14" Ht. at time of installation	6.25	High	Yes	10%
130	SB	*Spartina bakeri*	Cordgrass	1 Gal., Full, 3' O.C., Min 18" Ht. at time of installation	9	High	Yes	10%
104	WV	*Viburnum obovatum 'Densa'*	Walter's Viburnum	1 Gal., Full, 3' O.C., Min 18" Ht. at time of installation	9	Moderate	Yes	8%
	Native Accent Plants							
22	SS	*Serenoa repens 'Silver Form'*	Silver Saw Palmetto	3 Gal., Full, 4' O.C.	16	High	Yes	3%
113	ZP	*Zamia pumila*	Coontie	3 Gal., Full, 3' O.C.	9	High	Yes	10%
	Non-Native Shrubs/Grasses/Groundcover							
13	AA	*Agave americana*	Century Plant	3 Gal., Full, 3' O.C.	9	High	No	1%
295	AGP	*Arachis glabrata 'Ecoturf'*	Perennial Peanut	I Quart, Full, 24" O.C.	4	Moderate	No	10%
530	TAM	*Trachelospermum asiaticum 'Minima'*	Minima Jasmine	4" Pots, Full, 18" O.C.	2.25	Moderate	No	10%
7	ZM	*Zamia maritima*	Cardboard Plant	3 Gal., Full, 4' O.C., Min 18" Ht. at time of installation	16	High	No	1%
	Hedgerow Shrubs in Buffer 'A'							
58	VOD	*Viburnum obovatum 'Densa'*	Dwarf Walter's Viburnum	3 Gal., 36" O.C. Min 18" Ht. at time of installation	9	High	Yes	1%
	Miscellaneous							
	SOD	*Bahiagrass Sod*	Paspalum notatum	Disease & Weed Free		High		
		Mulch	Pinestraw Mulch	3" Depth				

LANDSCAPE NOTES

1. CONTRACTOR IS EXPECTED TO CARRY OUT ALL REPONSIBILITIES SET FORTH IN THESE LANDSCAPE NOTES AND IN THE LANDSCAPE SPECIFICATIONS. THEY WILL BE STRICTLY ENFORCED BY THE OWNER/L.A.
2. ALL PLANT MATERIAL SHALL BE FLORIDA #1 OR BETTER ACCORDING TO THE CURRENT NURSERY GRADES AND STANDARDS.
3. ALL PLANT BEDS SHALL BE DRESSED WITH 3" LAYER OF MULCH. ALL OTHER AREAS SHALL RECEIVE SOD (SEE PLAN FOR TYPE).
4. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO INSTALLATION.
5. ALL PLANTS SHALL MEET SIZE, CONTAINER, AND SPACING SPECIFICATIONS. ANY MATERIAL NOT MEETING SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
6. CONTRACTOR SHALL BE RESPONSIBLE TO RECEIVE THE LANDSCAPE ARCHITECT'S APPROVAL OF ALL PLANT BED LAYOUTS AND TREE LOCATIONS PRIOR TO INSTALLATION. IF PLANT MATERIAL IS INSTALLED PRIOR TO LANDSCAPE ARCHITECT'S APPROVAL, CONTRACTOR WILL BE SUBJECT TO RELOCATING THE MATERIAL AT THE LANDSCAPE ARCHITECT'S REQUEST AND THE CONTRACTOR'S OWN EXPENSE.
7. ALL SHRUBS SHALL BE PLANTED 1-1/2" AND TREES 2-1/2" ABOVE GRADE. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLANT HEALTH IN ON-SITE SOILS.
8. CONTRACTOR SHALL PERFORM SOIL TESTING PRIOR TO CONSTRUCTION !) TO DETERMINE NUTRIENT STATUS AND PH OF SOIL AND 2) TO DETERMINE THE SOIL TEXTURE IN THE TOP 6" - 12" OF SOIL, AND THEN AMEND THE SOIL BASED ON THE RESULTS OF THE TESTS. SEE THE LANDSCAPE SPECIFICATIONS FOR MORE INFORMATION..
9. CONTRACTOR SHALL BE RESPONSIBLE FOR FINE GRADING. GRADING SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.
10. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
11. CONTRACTOR SHALL SUBMIT UNIT PRICES FOR ALL BID ITEMS
12. SOIL SHALL BE FREE FROM LIME ROCK AND CONSTRUCTION DEBRIS.
13. IN THE EVENT OF A CONFLICT BETWEEN QUANTITIES REPRESENTED ON THE PLAN VS. QUANTITIES SHOWN ON THE PLANT LIST, THE PLAN SHALL CONTROL.
14. CONTRACTOR SHALL MAINTAIN TREES IN A STRAIGHT AND PLUMB POSITION FOR ONE YEAR. CONTRACTOR SHALL STAKE ALL TREES IF REQUIRED BY THE JURISDICTION.
15. PRIOR TO REMOVAL OF ANY TREES, THE TREES TO BE RETAINED SHALL HAVE PROTECTIVE TREE BARRIERS.
16. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR OWN TAKE OFFS AND QUANTITIES. THE QUANTITIES ON THE PLANT LIST SERVE ONLY AS A GUIDE TO THE OWNER AND L.A. THIS INCLUDES SOD AND MULCH QUANTITIES OF WHICH THE CONTRACTOR SHALL BE HELD TO BID QUANTITIES.
17. SUCCESSFUL BIDDER SHALL LOCK UP ALL MATERIALS IMMEDIATELY AFTER CONTRACT ASSIGNMENT. PLANTS SHALL BE HELD DURING THE PERIOD FROM CONTRACT TO INSTALLATION TO ALLOW ADDITIONAL GROWTH. ALL PLANTS WILL BE REQUIRED TO BE FULL AND HEALTHY. CONTRACTOR SHALL ARRANGE FOR PLANT APPROVAL PRIOR TO DELIVERY, EITHER BY SAMPLES. PHOTOS, OR NURSERY VISITS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR WARRANTY OF HEALTH OF PLANTS IN ON-SITE SOILS. IF, DURING DIGGING, CONTRACTOR DISCOVERS WATER-LOGGED, CLAYEY, COMPACTED OR SIMILARLY POORLY DRAINED SOILS, IT SHOULD BE BROUGHT TO THE ATTENTION OF OWNER/LANDSCAPE ARCHITECT FOR REMEDIAL ACTION.
19. CONTRACTOR SHALL ANTICIPATE THE FIRST FIVE FEET AROUND BUILDING PERIMETER WILL BE COMPACTED AND FOUNDATION BEDS SHOULD BE TILLED AND IMPROVED TO SUSTAIN VIGOROUS, HEALTHY PLANT GROWTH.
20. WS-TSR, LLC WILL BE RESPONSIBLE FOR THE MAINTENANCE OF THE WELCOME CENTER PARCEL.
21. A CERTIFICATE OF CODE COMPLIANCE SHALL BE PROVIDED TO COUNTY AND PROPERTY OWNER, PRIOR TO OBTAINING A CERTIFICATE OF OCCUPANCY. IF THE PROPERTY OWNER INSTALLS THE LANDSCAPING AND IRRIGATION, THE OWNER SHALL ACT AS THE CERTIFYING AGENT.
22. IF A TIMELY INSTALLATION OF LANDSCAPING IS NOT PRACTICABLE DUE TO SEASON OR SHORTAGE, AS DETERMINED BY COUNTY ADMINISTRATOR OR DESIGNEE, A BOND OF SATISFACTORY TO THE ENGINEERING SERVICES DEPARTMENT SHALL BE POSTED UNTIL THE PLANTS OCCURS.

IRRIGATION GENERAL NOTES

LANDSCAPE PLANS TO FOLLOW PASCO COUNTY GUIDELINES, FULL IRRIGATION PLANS TO BE PROVIDED IN THE FUTURE ALONG WITH ANY ENHANCEMENTS MADE TO THE CODE LANDSCAPE PLANS.

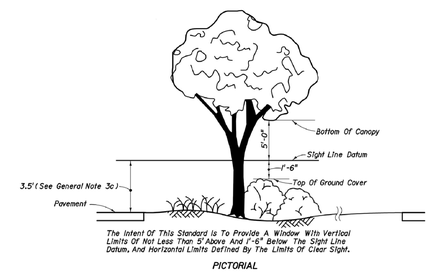
SIGHT TRIANGLE AND LANDSCAPE VISIBILITY NOTES:

SIGHT TRIANGLE SHALL BE UNOBSTRUCTED AND SHALL BE INSPECTED AND MAINTAINED IN CONFORMANCE WITH FDOT INDEX 546.

NOTHING SHALL BE ERECTED, PLACED, OR PLANTED ABOVE 3.5 FEET WITHIN THE 30' X 30' SIGHT TRIANGLE.

LANDSCAPING SHALL BE PLANTED IN SUCH A MANNER AS NOT TO IMPEDE THE ACCESS FOR MAINTENANCE AND STORM-WATER RUN-OFF FLOW TO OR IN A DITCH, SWALE, OR POND.

ALL THE TREES OVERHANG TO THE PUBLIC RIGHT OF WAY/OR TREES WITHIN THE ROW SHALL BE TRIMMED AND PRUNED TO MAINTAIN A MINIMUM VERTICAL CLEAR HEIGHT OF 8' FROM THE FINISHED GROUND SURFACE OF THE SIDEWALK TO THE BOTTOM OF CANOPY / 16'-6" CLEAR HEIGHT ABOVE THE ROADWAY PATHS.



FDOT INDEX 546

Date:	02/26/14
Drawn by:	DS
Reviewed by:	JG
Job Number:	21313.21
Revision:	Date:
1	04/10/14

STARKEY RANCH WELCOME CENTER

Pasco County, Florida

WS - TSR, LLC

5900 Imperial Lakes Drive, Mulberry, FL 33860

DIX.HITE + PARTNERS
130 W. JESUP AVENUE
LONGWOOD, FLORIDA
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CODE LANDSCAPE PLANS

Details, Notes and Plant List

Sheet Number:

L2.00

LANDSCAPE SPECIFICATIONS

PART 1 - GENERAL
1.01 WORK INCLUDED

A. THE WORK INCLUDED IN THIS SECTION CONSISTS OF FURNISHING,PLANTING, WATERING, FERTILIZING AND MULCHING ALL PLANTS AND LAWN AREAS OF THE SPECIES, SIZE AND QUALITY IN THE LOCATIONS INDICATED ON THE DRAWINGS OR AS DISCUSSED WITH THE LANDSCAPE ARCHITECT.

1.02 DELIVERY, STORAGE AND HANDLING

A. TRANSPORTATION AND INSPECTION: PLANT TRANSPORTATION SHALL COMPLY WITH ALL FEDERAL AND STATE REGULATIONS.

1.03 GUARANTEE

A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTING WORK FOR A PERIOD OF SIX MONTHS AND ALL SOD FOR THREE MONTHS AFTER THE DATE OF FINAL ACCEPTANCE. DURING THIS PERIOD, THE LANDSCAPE CONTRACTOR SHALL CONTINUE THE OBSERVATION OF PLANTS AND GUARANTEED WORK. THE LANDSCAPE CONTRACTOR SHALL SUBMIT MONTHLY OBSERVATION REPORTS TO THE OWNERS WITH A COPY TO THE LANDSCAPE ARCHITECT DURING THE GUARANTEE PERIOD. THE PURPOSE OF THESE REPORTS IS TO STATE ANY MAINTENANCE DEFICIENCIES OBSERVED. IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO REPORT THESE TO PROTECT HIS GUARANTEE. FAILURE TO SUBMIT REPORTS ELIMINATES ANY CLAIMS THAT THE GUARANTEE IS NOT VALID DUE TO IMPROPER MAINTENANCE BY THE OWNER.

B. REPLACEMENT OF DEFECTIVE PLANTS: ANY DEAD PLANTS OR PLANTS SHOWING INDICATION OF PROBABLE NO-SURVIVAL OR LACK OF HEALTH AND VIGOR, OR WHICH DO NOT EXHIBIT THE CHARACTERISTICS TO MEET SPECIFICATIONS, SHALL BE REPLACED WITHIN TWO WEEKS OF NOTICE FROM OWNER OR LANDSCAPE ARCHITECT. ALL REPLACEMENT PLANTS SHALL BE FURNISHED/INSTALLED AT NO ADDITIONAL COST TO THE OWNER AND SHALL BE GUARANTEED FOR SIX MONTHS. ALL REPLACEMENTS SHALL MEET ORIGINAL SPECIFICATIONS.

C. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT TEN DAYS PRIOR TO THE END OF THE GUARANTEE PERIOD AND SUCH GUARANTEE SHALL BE EXTENDED UNTIL NOTIFICATION IS RECEIVED.

D. AT THE END OF THE GUARANTEE PERIOD, ALL PLANTS THAT ARE DEAD OR UNSATISFACTORY SHALL BE REPLACED WITHIN TWO WEEKS.

1.04 JOB CONDITIONS

A. PROTECTION: THE LANDSCAPE CONTRACTOR SHALL PROTECT ALL MATERIALS AND WORK AGAINST INJURY FROM ANY CAUSES AND SHALL PROVIDE AND MAINTAIN ALL NECESSARY SAFEGUARDS FOR THE PROTECTION OF THE PUBLIC. HE SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSON OR PROPERTY THAT MAY OCCUR AS A RESULT OF THE NEGLIGENCE IN THE PROSECUTION OF THE WORK.

B. EXISTING CONDITIONS:

1. THE LANDSCAPE CONTRACTOR SHALL EXERCISE CARE IN DIGGING AND OTHER WORK SO AS NOT TO DAMAGE EXISTING WORK, INCLUDING UNDERGROUND PIPES AND CABLES, AND THE PIPES AND HYDRANTS OF WATERING SYSTEMS. SHOULD SUCH OVERHEAD OR UNDERGROUND OBSTRUCTIONS BE ENCOUNTERED WHICH INTERFERE WITH PLANTING, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIR OF ANY DAMAGE CAUSED BY HIS WORK. (SEE SECTION 3.01)

2. SHOULD ANY OBJECTIONABLE MATERIAL SUCH AS OLD CONCRETE, BRICKS OR OTHER DEBRIS BE ENCOUNTERED DURING PLANTING OPERATIONS, THEY SHALL BE REMOVED FROM THE SITE BY THE LANDSCAPE CONTRACTOR.

3. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLANT GROWTH IN EXISTING ON-SITE SOILS. PRIOR TO COMMITMENT OF PLANT SHIPMENTS, THE LANDSCAPE CONTRACTOR SHALL EXAMINE THE SOILS IN ALL AREAS OF WORK BY CONDUCTING SOIL TESTS AND FILLING TEST HOLES WITH WATER TO DETERMINE IF SOIL CHEMISTRY AND DRAINAGE ARE SATISFACTORY. ANY UNSATISFACTORY CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT FOR POSSIBLE CORRECTIVE ACTION OR PLANT MATERIAL SUBSTITUTIONS. THE OWNER/LANDSCAPE ARCHITECT RESERVES THE RIGHT TO MAKE CHANGES OR SUBSTITUTIONS IN PLANT TYPE OR QUANTITIES FOR THE PURPOSES OF INSURING PROPER PLANT GROWTH.

4. PRIOR TO WORK, LANDSCAPE CONTRACTOR SHALL BECOME FULLY FAMILIAR WITH THE SITE AND THE WORK OF ALL OTHER TRADES, INCLUDING HARDSCAPE AND GRADING, IN ORDER TO UNDERSTAND THE FULL EXTENT OF THE WORK.

1.05 QUALITY CONTROL

A. THE LANDSCAPE ARCHITECT / OWNER SHALL HAVE THE RIGHT, AT ANY STAGE OF THE OPERATIONS, TO REJECT ANY AND ALL WORK AND MATERIAL THAT, IN HIS/HER OPINION, DO NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.

B. ALL PLANTING SHALL BE PERFORMED BY PERSONNEL FAMILIAR WITH PLANTING PROCEDURE AND UNDER THE SUPERVISION OF A QUALIFIED PLANTING FOREMAN.

C. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND REGULATIONS.

D. THE WORK SHALL BE COORDINATED WITH OTHER TRADES TO PREVENT CONFLICTS.

1.06 QUANTITIES

A. IN THE EVENT OF A CONFLICT BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND PLANS, THE PLANS SHALL CONTROL.

PART 2 - PRODUCTS
2.01 MATERIALS

A. GENERAL:

1. NOMENCLATURE: ALL TREES, SHRUBS AND PLANTS SHALL BE TRUE TO NAME AS ESTABLISHED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE PUBLICATION "STANDARD PLANTS NAMES". THE DESIGNATED AUTHORITY FOR THE IDENTIFICATION OF ALL MATERIAL SHALL BE THE TWO PUBLICATIONS OF L.H. BAILY, "HORTUS III" AND "MANUAL OF CULTIVATED PLANTS", AND ALL SPECIMENS SHALL BE TRUE TO TYPE, NAME, ETC., AS DESCRIBED THEREIN.

2. GRADE STANDARDS AND QUALITY: ALL PLANTS SHALL BE NURSERY GROWN, AND SHALL COMPLY WITH ALL REQUIRED INSPECTION, GRADING STANDARDS AND PLANT REGULATIONS AS SET FORTH IN THE FLORIDA DEPARTMENT OF AGRICULTURE. "GRADES AND STANDARDS FOR NURSERY PLANTS," PARTS 1 AND 2 INCLUDING REVISIONS.

a. THE MINIMUM GRADE FOR ALL TREES AND SHRUBS SHALL BE FLORIDA NO. 1 UNLESS OTHERWISE INDICATED AND ALL PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL HAVE HEALTHY, WELL-DEVELOPED ROOT SYSTEMS AND SHALL BE FREE OF DISEASE AND INSECT PESTS, EGGS OR LARVAE.

3. MEASUREMENTS: THE MINIMUM ACCEPTABLE SIZE OF PLANTS, MEASURED AFTER PRUNING, WITH BRANCHES IN NORMAL POSITIONS, SHALL CONFORM TO THE SPECIFIED SIZES AS SHOWN ON THE PLANS. SIZES SPECIFIED ARE MINIMUM STANDARDS. PLANTS SHALL BE EQUAL TO OR LARGER THAN ALL CATEGORIES (HEIGHT, SPREAD, CALIPER) OF SIZE SPECIFICATION. SUBSTANTIAL DEVIATIONS FROM THESE MEASUREMENTS MUST BE APPROVED BY LANDSCAPE ARCHITECT. CALIPER OF TREE TRUNKS SHALL BE MEASURED ONE FOOT ABOVE ROOTBALL FOR TREES OVER 6 INCHES IN CALIPER, AND SHALL BE MEASURED 6 INCHES ABOVE THE ROOT BALL FOR TREES UNDER 6 INCHES IN CALIPER.

4. PLANT PROTECTION: PLANTS SHALL BE PROTECTED UPON ARRIVAL AT THE SITE, BY BEING THOROUGHLY WATERED, KEPT MOIST, AND PROPERLY MAINTAINED UNTIL PLANTED.

B. PLANT MATERIALS: WITH REFERENCE TO METHOD OF CULTIVATION, ROOT SYSTEM STATUS, ETC., PLANTS FOR LANDSCAPING SHALL BE CLASSIFIED UNDER THE FOLLOWING DESIGNATIONS:

1. BALLED AND BURLAPPED: PLANTS SO CLASSIFIED SHALL BE DUG WITH FIRM NATURAL ROOT BALLS OF EARTH COMING FROM SINGULAR CLIMATIC AND SOIL CONDITIONS AS THOSE ON PROJECT SITE AND OF SUFFICIENT DIAMETER AND DEPTH TO INCLUDE MOST OF THE FIBROUS ROOTS. THE ROOT BALL OF THESE PLANTS SHALL BE PROPERLY WRAPPED WITH BURLAP SACK MATERIAL AND REMAIN PROTECTED AND WET UNTIL THEY ARE PLANTED. THE PLANTS SHALL BE HANDLED ONLY BY THE EARTH BALL AND NOT BY THE PLANT ITSELF. ALL BALLED AND BURPED PLANTS WHICH CANNOT BE PLANTED IMMEDIATELY UPON DELIVERY SHALL BE SET ON THE GROUND AND SHALL BE WELL PROTECTED WITH SOIL, WET SOIL, WET MOSS, OR OTHER ACCEPTABLE MATERIAL. THE PLANTS SHALL BE SET WITH THE BURLAP COVER INTACT AND WITH THE BURLAP SHOWING, UNTIL INSPECTION. AT FINAL INSPECTION THE BURLAP MAY BE CUT AWAY TO GROUND LEVEL AND THEN COMPLETELY COVERED WITH SOIL. BURLAP: SHALL BE PURE BURLAP, ORGANIC FIBER WITH THE ABILITY TO DECOMPOSE.

2. CONTAINER GROWN PLANTS:

a. CONTAINER GROWN PLANTS SHALL HAVE BEEN GROWN IN CONTAINERS LARGE ENOUGH AND FOR SUFFICIENT TIME FOR THE ROOT SYSTEM TO HAVE DEVELOPED WELL ENOUGH TO HOLD ITS SOIL TOGETHER FIRM AND WHOLE. NO PLANTS SHALL BE LOOSE IN THE CONTAINER. PLANTS THAT HAVE BECOME ROOT BOUND OR FOR WHICH THE TOP SYSTEM IS TOO LARGE FOR THE SIZE OF THE CONTAINER, WILL NOT BE ACCEPTABLE.

b. ALL CONTAINERS SHALL BE CUT AND OPENED FULLY, IN A MANNER SUCH AS WILL NOT DAMAGE THE ROOT SYSTEM. CONTAINER GROWN PLANTS SHALL NOT BE REMOVED FROM THE CONTAINER UNTIL IMMEDIATELY BEFORE PLANTING, WHEN ALL DUE CARE SHALL BE TAKEN TO PREVENT DAMAGE TO THE ROOT SYSTEM.

3. BARE ROOT PLANTS: NO BARE ROOT PLANTS SHALL BE USED, UNLESS SPECIFIED.

4. GROW BAG PLANTS: NO GROW-BAG PLANTS SHALL BE USED.

C. PLANTING MATERIALS:

1. TOPSOIL:

a. SOIL CHARACTERISTICS:
TOPSOIL SHALL BE FRIABLE SANDY LOAM, TYPICAL OF CULTIVATED TOPSOIL LOCALLY, CONTAINING AT LEAST 5 PERCENT OF DECAYED ORGANIC MATTER (HUMUS). IT SHALL OCCUR AS ON-SITE NATURAL TOPSOIL WITH GOOD CHARACTERISTICS OR BE TAKEN FROM A WELL DRAINED, ARABLE SITE. IT SHALL BE REASONABLY FREE OF WEEDS, SUBSOIL, STONES, CLODS, STICKS, ROOTS OR OTHER OBJECTIONABLE EXTRANEOUS MATTER OR DEBRIS. IT SHALL NOT CONTAIN TOXIC MATERIALS AND SHALL HAVE ACIDITY RANGE OF PH 6.0 TO 7.0. TOPSOIL FROM NUT GRASS INFESTED AREAS WILL NOT BE ACCEPTABLE. CLAYEY SOIL FROM POND EXCAVATIONS WILL NOT BE ACCEPTABLE.

b. SOIL TESTING:
LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PLANT HEALTH AND SURVIVAL IN ON-SITE SOILS. SEVERAL WEEKS PRIOR TO SCHEDULED LANDSCAPE INSTALLATION, LANDSCAPE CONTRACTOR SHALL COLLECT SOIL SAMPLES FROM THE SITE FOR SOIL PH AND FERTILITY TESTING. ALLOW ENOUGH TIME FOR TESTING FACILITY TO PERFORM THEIR TESTS, GENERATE THEIR RESULTS AND RECOMMENDATIONS, AND ENOUGH TIME TO AMEND THE SOIL, IF NECESSARY, BASED ON THE RECOMMENDATIONS OF THE TESTING FACILITY. ALSO PRIOR TO LANDSCAPE INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL EVALUATE THE ON-SITE SOIL'S ABILITY TO DRAIN.

1.1. SOIL PH AND FERTILITY TESTING:
SOIL TESTING SHALL BE PERFORMED AND ANALYZED BY A STATE-REGISTERED TESTING FACILITY (THE UNIVERSITY OF FLORIDA'S INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES (IFAS) PROVIDES THIS TESTING SERVICE FOR A NOMINAL FEE). THE RESULTS OF THE TESTS SHALL BE FORWARDED TO THE OWNER/LA. FOR REVIEW. THE RECOMMENDATIONS FROM THE TESTING FACILITY FOR FERTILIZER AND SOIL AMENDMENTS SHALL TAKE PRECEDENCE OVER THE FERTILIZER RATES AND ANALYSES IN THIS SECTION. SOIL TESTING IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR AND SHALL BE PERFORMED PRIOR TO LANDSCAPE INSTALLATION.

1.2. SOIL DRAINAGE EVALUATION:
WELL-DRAINED SOILS ARE REQUIRED FOR NEW LANDSCAPES TO SURVIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE THE ON-SITE SOILS TO DETERMINE THE ABILITY TO DRAIN PROPERLY. SOILS WITH TOO MUCH CLAY HOLD WATER AND CAUSE PROBLEMS FOR PLANT SURVIVAL. CONTRACTOR SHALL VISUALLY INSPECT THE SITE FOR SIGNS OF POORLY DRAINED SOILS (STANDING WATER, SURFACE CRACKING, HARD TO THE TOUCH, ETC.) AND DIG TEST HOLES. CONTRACTOR SHALL WRITE A REPORT DEMONSTRATING THEIR FINDINGS AND ALERT THE OWNER/L.A. IF ANY EVIDENCE OF POORLY-DRAINED SOILS ARE DISCOVERED.

c. DESIRED PARTICLE SIZE DISTRIBUTION IN TOP 6"-12" OF SOIL:

1.1. COARSE SAND (0.5-2mm)/MEDIUM SAND (0.25-0.5mm): MINIMUM OF 60% (BY WEIGHT) OF PARTICLES SHALL FALL WITHIN THIS RANGE (#60 SIEVE).
1.2. FINE SAND (0.15-0.25mm): MAXIMUM OF 20% (BY WEIGHT) OF PARTICLES SHALL FALL WITHIN THIS RANGE (#100 SIEVE).
1.3. VERY FINE SAND (0.075-0.15mm): MAXIMUM OF 5% (BY WEIGHT) OF PARTICLES SHALL FALL WITHIN THIS RANGE (#200 SIEVE).
1.4. SILT (0.037-0.075mm): MAXIMUM OF 5% (BY WEIGHT) OF PARTICLES SHALL FALL WITHIN THIS RANGE (#400 SIEVE).
1.5. CLAY (LESS THAN0 .037mm): MAXIMUM 3% OF PARTICLES (BY WEIGHT) SHALL FALL WITHIN THIS RANGE (PAN).

d. INFILTRATION OR PERCOLATION RATE OF SOIL: DESIRED LEVEL IS 2" PER HOUR.

e. SOIL PREPARATION: PRIOR TO PLACING MIX AND BACKFILL, OR COMMENCING WITH PLANTING, ROTOTILL ANY OR ALL AREAS THAT HAVE BEEN PREVIOUSLY COMPACTED OVER 90 PERCENT FOR OTHER CONSTRUCTION PURPOSES.

2. FERTILIZER: FERTILIZER SHALL BE A COMPLETE BALANCED BLEND FORMULA, OF WHICH PART OF THE ELEMENTS SHALL BE DERIVED FROM ORGANIC SOURCES. IT SHALL CONTAIN NITROGEN, PHOSPHORUS AND POTASSIUM AS WELL AS RECOMMENDED MICRONUTRIENTS SUCH AS MAGNESIUM, IRON, COPPER, ZINC, BORON, AND MANGANESE IN SULFATE FORM. NITROGEN SHALL BE APPLIED OVER ALL TURF, SHRUB AND TREE AREAS AT A RATE OF 1 1/2 POUNDS PER 1,000 SQUARE FEET. THE COMPLETE FERTILIZER ANALYSIS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.

3. MULCH: PINE STRAW MULCH SHALL BE CLEAN, BRIGHT AND FREE OF WEEDS, MOSS, STICKS AND OTHER DEBRIS.

4. WATER: SUITABLE WATER FOR THE IRRIGATION OF THE NEW PLANTINGS DURING THE PROGRESS OF CONSTRUCTION SHALL BE PROVIDED AND PAID FOR BY THE LANDSCAPE CONTRACTOR, WHO SHALL ALSO FURNISH ADEQUATE WATERING EQUIPMENT.

5. STAKES AND TIES: STAKES AND TREE TIES SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF PARAGRAPH 3.02.B HEREINAFTER.

PART 3 - EXECUTION
3.01 PREPARATION

A. UNDERGROUND OBSTRUCTIONS:

1. THE LANDSCAPE CONTRACTOR, PRIOR TO CONSTRUCTION, SHALL VERIFY ALL UTILITIES.

2. UPON REQUEST FROM THE LANDSCAPE CONTRACTOR, THE OWNER SHALL PROVIDE PLANS SHOWING LOCATIONS OF UNDERGROUND UTILITIES AND/OR WILL ASSIST THE LANDSCAPE CONTRACTOR IN SECURING UNDERGROUND LOCATIONS FROM OTHER PUBLIC UTILITY COMPANIES, SUCH AS TELEPHONE, ELECTRICITY, ETC.

3. IN THE EVENT THAT ROCK, UNDERGROUND CONSTRUCTION WORK, UTILITY LINES OR OBSTRUCTION OUT OF THE ORDINARY ARE ENCOUNTERED IN ANY PLANT PIT EXCAVATION; ALTERNATIVE LOCATIONS SHALL BE SELECTED BY THE LANDSCAPE ARCHITECT. WHERE LOCATIONS CANNOT BE CHANGED AND THE OBSTRUCTIONS MAY BE REMOVED, THE OBSTRUCTIONS SHALL BE REMOVED TO A DEPTH OF NOT LESS THAN 3-FEET BELOW GRADE AND NO LESS THAN 6-INCHES BELOW BOTTOM OF BALLS OR ROOTS WHEN PLANT IS PROPERLY SET AT THE REQUIRED GRADE.

B. EXCAVATION OF PLANTING BEDS AND/OR PLANT HOLES:

1. WHERE EXCAVATION ENCOUNTERS MATERIAL WHICH ARE SUITABLE FOR PLANT GROWTH, THE PLANT HOLE EXCAVATIONS SHALL BE ROUGHLY CYLINDRICAL IN SHAPE, WITH THE SIDES APPROXIMATELY VERTICAL. PLANTS SHALL BE CENTERED IN THE HOLE, WITH THE TRUNK LOCATION AS SHOWN IN THE DRAWINGS. BOTTOMS OF THE HOLES SHALL BE UNDISTURBED NATURAL SUBGRADE PREVENTING THE TREE FROM SETTLING.

C. PROTECTION OF EXISTING TREES: THE LANDSCAPE CONTRACTOR SHALL PROTECT EXISTING TREES FROM DAMAGE. WHERE DAMAGE DOES OCCUR, THE LANDSCAPE CONTRACTOR SHALL REMOVE THE DAMAGED TREE, THEN REPLACE IT IN KIND AND SIZE IN ACCORDANCE WITH THE INSTRUCTION OF THE LANDSCAPE ARCHITECT AND THE APPROPRIATE SPECIFICATIONS, ALL AT NO ADDITIONAL COST TO THE OWNER.

D. GRADES: IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO FINISH (FINE) GRADE ALL LANDSCAPE AREAS ELIMINATING ALL SURFACE IRREGULARITIES, DEPRESSIONS, STICKS, STONES AND OTHER DEBRIS TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT. NO PLANT MATERIAL SHALL BE PLANTED UNTIL FINAL GRADE HAS BEEN ESTABLISHED, ENSURING POSITIVE DRAINAGE, COMPACTED TO THE REQUIRED DEPTH, AND APPROVED BY THE LANDSCAPE ARCHITECT.

3.02 PLANTING

A. SETTING OF PLANTS:

1. WHEN LOWERING INTO THE HOLE, THE PLANT SHALL REST ON A PREPARED HOLE BOTTOM SUCH THAT THE ROOTS ARE LEVEL WITH, OR SLIGHTLY ABOVE, THE LEVEL OF THEIR PREVIOUS GROWTH AND SO ORIENTED SUCH AS TO PRESENT THE BEST APPEARANCE. THE LANDSCAPE CONTRACTOR, WHEN SETTING PLANTS IN HOLES, SHALL MAKE ALLOWANCES OF ANY ANTICIPATED SETTLING OF THE PLANTS. IF WET CONDITIONS ARE ANTICIPATED, PLANTS SHALL BE SET 2 INCHES TO 3 INCHES HIGHER THAN NORMAL.

2. THE BACKFILL SHALL BE MADE WITH NATIVE TOPSOIL, AND SHALL BE FIRMLY RODDED AND WATERED-IN, SO THAT NO AIR POCKETS REMAIN. THE QUANTITY OF WATER APPLIED IMMEDIATELY UPON PLANTING SHALL BE SUFFICIENT TO THOROUGHLY MOISTEN ALL OF THE BACKFILLED EARTH. PLANTS SHALL BE KEPT IN A MOISTENED, BUT NOT SATURATED, CONDITION FOR THE DURATION OF THE ESTABLISHMENT PERIOD.

B. STAKING AND GUYING: IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO MAINTAIN ALL PLANTS IN A PLUMB, UPRIGHT POSITION UNTIL THE END OF THE GUARANTEE PERIOD. STAKING SHALL BE THE OPTION OF THE LANDSCAPE CONTRACTOR, ALTHOUGH ALL DAMAGED PLANTS RESULTING FROM THE LACK OF PROPER STAKING AND GUYING SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR AT NO EXPENSE TO THE OWNER. ALL THREE GUY WIRES SHALL BE FLAGGED WITH YELLOW SAFETY RIBBON.

C. PRUNING:

1. ALL BROKEN OR DAMAGED ROOTS SHALL BE CUT OFF SMOOTHLY AND THE TOPS OF ALL TREES SHALL BE PRUNED IN A MANNER COMPLYING WITH STANDARD HORTICULTURAL PRACTICE. AT THE TIME PRUNING IS COMPLETED, ALL REMAINING WOOD SHALL BE ALIVE. ALL CUT SURFACES OF 1-INCH OR MORE IN DIAMETER, ABOVE THE GROUND, SHALL BE TREATED WITH AN APPROVED COMMERCIAL TREE PAINT. FINE PRUNING FOR TREE SHAPE AND APPEARANCE SHALL BE DONE ONLY UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT.

2. AT THE END OF THE GUARANTEE PERIOD, AT LEAST 80 PERCENT OF THE WOOD REMAINING SHALL BE ALIVE.

D. MULCHING: WITHIN ONE WEEK AFTER THE PLANTING, MULCH MATERIAL SHALL BE UNIFORMLY APPLIED TO A MINIMUM LOOSE THICKNESS OF 3 INCHES OVER THE ENTIRE AREA OF THE BACKFILLED HOLE OR BED. THE MULCH SHALL BE MAINTAINED CONTINUOUSLY IN PLACE UNTIL THE TIME OF FINAL INSPECTION.

E. WATERING: THE LANDSCAPE CONTRACTOR SHALL CONTINUE WATERING FOR AS LONG AS IS NECESSARY TO PROPERLY ESTABLISH THE NEW PLANTINGS. CARE SHALL BE TAKEN TO PREVENT STAINING OF NEW CONSTRUCTION WHERE TEMPORARY WELL WATER IS USED.

F. PEST CONTROL: PRIOR TO FINAL ACCEPTANCE, OCCURRENCE OF SCALES, BORERS, FOLIAR FEEDERS, APHIDS, MITES, LEAF-SPOT AND DIEBACK, NEMATODES AND CANKER-PRODUCING FUNGI, SHALL BE TREATED WITH APPROPRIATE PESTICIDE.

G. ALL PLANTS SHALL RECEIVE THE SPECIFIED FERTILIZER PRIOR TO FINAL ACCEPTANCE

3.03 BERMING

A. FILL DIRT SHALL BE LOCALLY OBTAINED MATERIAL FROM NATURALLY DRAINED SOURCES, FREE FROM DRY, ORGANIC DEBRIS, STONES LARGER THAN 1-INCH DIAMETER AND OTHER MATERIALS HARMFUL TO SUCCESSFUL DRAINAGE AND PLANT GROWTH. SOIL SHALL BE WELL MIXED AND CONTAIN NO MORE THAN 25 PERCENT MUCK.

B. GRADE AREAS INDICATED WITH UNIFORM LEVELS OR SLOPES WITH NO MORE THAN 4:1 MAXIMUM SLOPE. BERMS SHALL BE GENTLY ROLLING AND PARABOLIC.

C. REPAIR AND RE-ESTABLISH GRADES IN SETTLED, ERODED, RUTTED, OR OTHERWISE DAMAGED AREAS.

3.04 SODDING

A. THE SOD SHALL BE OF FIRM, TOUGH TEXTURE HAVING A COMPACT GROWTH OF GRASS WITH GOOD ROOT DEVELOPMENT. IT SHALL CONTAIN NO BERMUDA GRASS, WEEDS OR ANY OTHER OBJECTIONABLE VEGETATION. THE SOIL EMBEDDED IN THE SOD SHALL BE GOOD CLEAN EARTH, FREE FROM STONES AND DEBRIS. THE SOD SHALL BE FREE FROM FUNGUS, VERMIN AND OTHER DISEASES. FINAL TURF SHALL HAVE NO AREA GREATER THAN 6 SQUARE INCHES OF UNSODDED AREA.

B. SOLID SOD SHALL BE LAID WITH CLOSELY ABUTTING JOINTS WITH A ROLLED EVEN SURFACE. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO BRING THE SOD EDGE IN A NEAT, CLEAN MANNER TO THE EDGE OF ALL PAVING AND SHRUB AREAS. AFTER THE SOD IS LAID, A TOP DRESSING OF CLEAN SAND WILL BE EVENLY APPLIED OVER THE ENTIRE SURFACE AND THOROUGHLY WASHED IN, IF DETERMINED NECESSARY. PEG SOD ON SLOPES AS REQUIRED TO PREVENT SLIPPAGE. FERTILIZE ALL SOD: 1 POUND NITROGEN PER 1,000 SQUARE FEET.

3.05 FIELD QUALITY CONTROL

A. MAINTENANCE PRIOR TO FINAL ACCEPTANCE:

1. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS PLANTED AND SHALL CONTINUE UNTIL FINAL ACCEPTANCE. PLANTS SHALL BE WATERED, MULCHED, WEEDED, PRUNED, SPRAYED, FERTILIZED, CULTIVATED AND OTHERWISE MAINTAINED AND PROTECTED FOR THE PERIOD OF TIME STATED ABOVE. SOD SHALL BE MOWED, IF REQUIRED.

2. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE POSITION, PLANTING SAUCER RESTORED AND DEAD MATERIAL REMOVED. GUYS SHALL BE TIGHTENED AND REPAIRED.

3. DEFECTIVE WORK SHALL BE CORRECTED AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT. UPON COMPLETION OF PLANTING, THE LANDSCAPE CONTRACTOR SHALL REMOVE FROM THE SITE EXCESS SOIL AND DEBRIS, AND REPAIR ANY DAMAGE TO STRUCTURES, ETC., RESULTING FROM PLANTING OPERATIONS.

4. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROTECTION AGAINST MECHANICAL DAMAGE. THIS SHALL INCLUDE PROVIDING PROTECTION FROM VEHICLES, INCLUDING THE POSTING OF APPROVED WARNING SIGNS AND BARRICADES, AS NEEDED. THE LANDSCAPE CONTRACTOR SHALL REPAIR, RESTORE OR REPLACE ANY PLANTS OR PLANTING AREAS WHICH MIGHT BECOME DAMAGED AS A RESULT OF ANY NEGLIGENCE BY THE LANDSCAPE CONTRACTOR IN COMPLYING WITH THESE REQUIREMENTS. AS A SPECIFIC REQUIREMENT OF THESE CONDITIONS, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT ALL PLANTS AT THE TIME OF FINAL ACCEPTANCE, EXHIBIT THE CHARACTERISTICS AND QUALIFICATIONS REQUIRED FOR THE GRADE OF PLANT AS ORIGINALLY SPECIFIED.

5. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL WATERING REQUIRED IF IRRIGATION PROVES TO BE INADEQUATE FOR FRESHLY PLANTED MATERIAL.

6. EXCEPT AS OTHERWISE SPECIFIED, THE LANDSCAPE CONTRACTOR'S WORK SHALL CONFORM TO ACCEPTED HORTICULTURAL PRACTICES AS USED IN THE TRADE.

B. FINAL ACCEPTANCE:

1. UPON COMPLETION OF ALL WORK, INCLUDING MAINTENANCE, THE LANDSCAPE CONTRACTOR SHALL ARRANGE FOR A FINAL REVIEW. THE LANDSCAPE WORK MAY BE REVIEWED FOR ACCEPTANCE IN PARTS, PROVIDED THE WORK COMPRISES OF ONE FULL UNIT OR AREA OF SUBSTANTIAL SIZE.

2. DATE OF FINAL ACCEPTANCE SHALL MARK THE BEGINNING OF THE GUARANTEE PERIOD.

C. GUARANTEE REVIEW: AT THE END OF THE GUARANTEE PERIOD, REVIEW OF PLANTS WILL BE MADE BY THE LANDSCAPE ARCHITECT UPON WRITTEN NOTICE REQUESTING SUCH REVIEW, SUBMITTED BY THE LANDSCAPE CONTRACTOR AT LEAST TEN DAYS BEFORE THE ANTICIPATED WALK-THRU. ALL DEFECTS DISCOVERED SHALL BE REPAIRED OR REPLACED BY THE LANDSCAPE CONTRACTOR.

3.06 ADJUSTMENT AND CLEANING

A. CLEANING UP THE SITE: UPON COMPLETION OF ANY LANDSCAPE PROJECT, THE LANDSCAPE CONTRACTOR MUST THOROUGHLY CLEAN UP THE PROJECT SITE. IN ADDITION TO REMOVING ALL EQUIPMENT, UNUSED MATERIALS, DELETERIOUS MATERIAL, AND SURPLUS EXCAVATED MATERIAL, THE LANDSCAPE CONTRACTOR SHALL FINE GRADE ALL DISTURBED AREAS AND THE AREAS ADJACENT TO THE NEW PLANTINGS TO PROVIDE A NEAT AND UNIFORM SITE. ALL DAMAGED OR ALTERED EXISTING STRUCTURES, AS A RESULT OF THE LANDSCAPE WORK, SHALL BE CORRECTED.

Date:	02/26/14
Drawn by:	DS
Reviewed by:	JG
Job Number:	21313.21
Revision:	Date:
1	04/10/14

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Landscape Specifications

Sheet Number:
L3.00