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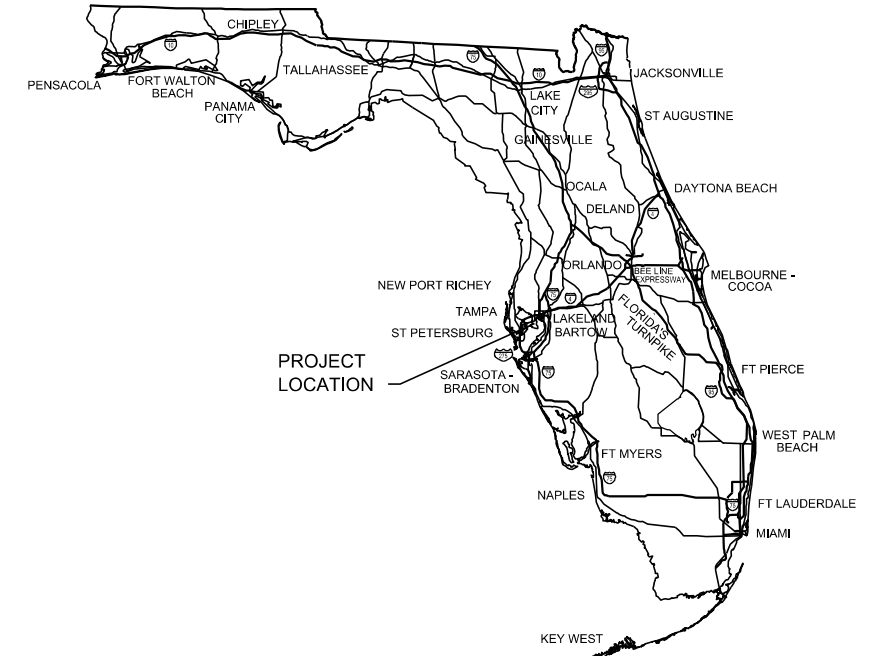
City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456

STATE OF FLORIDA  
 DEPARTMENT OF TRANSPORTATION  
**CONTRACT PLANS**

FINANCIAL PROJECT ID 436634-2-58-01  
 FDOT CONTRACT # ARV90  
 FDOT HLRMOA # 08-15  
 HILLSBOROUGH COUNTY

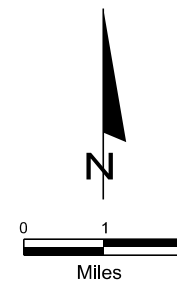
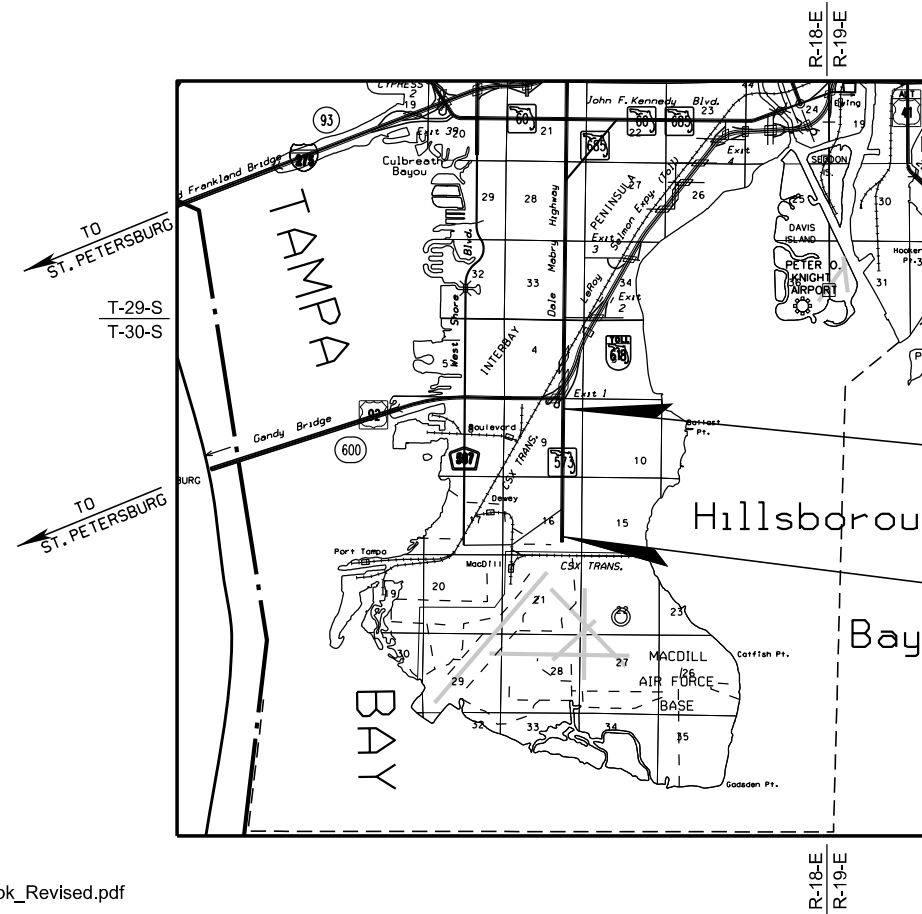
STATE ROAD NO. 573 (S. DALE MABRY HIGHWAY) RIGHT-OF-WAY  
 BETWEEN MACDILL AFB (SECTION 10180-000, MP 0.082) AND  
 US 92 (GANDY BOULEVARD, SECTION 10180-000, MP 1.826)

**LANDSCAPE PLANS**  
**DALE MABRY HIGHWAY**  
**LIVING MEMORIAL**



**INDEX OF LANDSCAPE PLANS**

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END PROJECT  
 STA. 120+28.25  
 MP 1.826

BEGIN PROJECT  
 STA. 32+98.00  
 MP 0.082

PLANS PREPARED BY:  
 CITY OF TAMPA  
 Parks & Recreation Department  
 Planning & Design Division  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Fax:(813) 274-7429  
 Tel:(813) 274-5137

BAYSIDE ENGINEERING, INC.  
 1104 E. Twiggs Street, Suite 100  
 Tampa, FL 33602-3103  
 Fax: 813-314-0345  
 Tel: 813-314-0314  
 Vendor No. 59-3275933  
 Certificate of Authorization No. 7102

NOTE: THE SCALE OF THESE PLANS MAY  
 HAVE CHANGED DUE TO REPRODUCTION.

LANDSCAPE PLANS  
 ARCHITECT OF RECORD: Laurie Potier-Brown, R.L.A.

R.L.A. NO.: 0001676

FISCAL YEAR	SHEET NO.
15	L-1

FDOT PROJECT MANAGER: MICHAEL KIDDE

GENERAL LANDSCAPE NOTES

1. THE LANDSCAPE PROJECT CONSISTS OF PERMITTING, PREPARATION, INSTALLATION, 90 DAY MAINTENANCE AND WARRANTY AND ALL ASSOCIATED COSTS TO MEET FDOT REQUIREMENTS.
2. LANDSCAPE INSTALLATION SHALL BE PERFORMED PER FDOT DESIGN STANDARDS INDEX 544.
3. FLAG ALL PLANTING LOCATIONS AND OBTAIN FDOT DISTRICT LANDSCAPE ARCHITECT AND CITY OF TAMPA APPROVAL PRIOR TO PLANTING. PLANTING LOCATIONS MAY BE FIELD ADJUSTED BY CITY OF TAMPA PRIOR TO PLANTING. ANY VEGETATION PLANTED PRIOR TO APPROVAL BY CITY OF TAMPA IS SUBJECT TO RELOCATION AT THE CONTRACTOR'S EXPENSE.
4. MINIMUM GRADE FOR ALL PLANTS FLORIDA GRADE NO. 1 OR BETTER NURSERY GROWN IN ACCORDANCE WITH FLORIDA GRADES AND STANDARDS HANDBOOK, CURRENT EDITION. STATE OF FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, DIVISION OF PLANT INDUSTRY.
5. ALL PLANT MATERIAL SHALL BE INSPECTED AND APPROVED BY CITY OF TAMPA AT THE GROWING SITE, NURSERY OR HANDLING AREA DESIGNATED FOR THE PROJECT. ONLY PLANT MATERIAL THAT IS FLORIDA NO. 1 OR BETTER, AS CERTIFIED BY THE GROWER, SHALL BE PRESENTED FOR INSPECTION. NO SUBSTITUTION OF SPECIFIED PLANT MATERIALS WILL BE ALLOWED. PROVIDE AT LEAST FIVE (5) WORKING DAY NOTICE TO CITY OF TAMPA FOR A SOURCE SUPPLY INSPECTION.
6. CONTAINER SIZE IS TO BE AS SPECIFIED. A MINIMUM OF 80% OF THE CONTAINER ROOT BALL MUST BE BOUND BY THE ROOT SYSTEM. ENCIRCLING ROOTS ARE PROHIBITED.
7. THE ESTABLISHMENT PERIOD FOR WATERING AND MAINTENANCE BY THE CONTRACTOR IS AN INITIAL 90 DAY PERIOD AND SHALL INCLUDE ALL PLANTS WITHIN THE LIMITS OF CONSTRUCTION. PLANT MATERIAL SHALL REMAIN IN FLORIDA NO. 1 CONDITION FOR THE ENTIRE ESTABLISHMENT PERIOD. ALL PLANTS SHALL BE WATERED IN ACCORDANCE WITH THE WATER SCHEDULE PER THE TECHNICAL MAINTENANCE PLAN ON SHEET LS-18.
8. THE CITY OF TAMPA SHALL BE RESPONSIBLE FOR WATERING, MAINTENANCE AND WARRANTY DURING THE 365 DAY ESTABLISHMENT PERIOD. ALL PLANTS WITHIN THE LIMITS OF CONSTRUCTION SHALL REMAIN IN FLORIDA NO. 1 CONDITION FOR THE ENTIRE ESTABLISHMENT PERIOD. ALL PLANTS SHALL BE WATERED IN ACCORDANCE WITH THE WATER SCHEDULE PER THE TECHNICAL MAINTENANCE PLAN ON SHEET L-4.
9. THE CONTRACTOR SHALL REQUEST AN INSPECTION AT THE END OF THE 90 DAY ESTABLISHMENT PERIOD. ALL PLANT MATERIALS SHALL HAVE A 100% SUCCESS RATE AT THE ESTABLISH PERIOD INSPECTION. A REPRESENTATIVE FROM THE CONTRACTOR AND CITY OF TAMPA SHALL BE IN ATTENDANCE AT THE ESTABLISHMENT PERIOD INSPECTION. MAINTENANCE OF THE COMPLETED LANDSCAPE SHALL BE TRANSFERRED TO THE CITY OF TAMPA AFTER FINAL ACCEPTANCE OF THE PROJECT. WARRANTY WILL MEET FDOT REQUIREMENTS.
10. THE CITY OF TAMPA SHALL REQUEST AN INSPECTION AT THE END OF THE 365 DAY ESTABLISHMENT PERIOD. ALL PLANT MATERIALS SHALL HAVE A 100% SUCCESS RATE AT THE ESTABLISH PERIOD INSPECTION. A REPRESENTATIVE FROM THE CITY OF TAMPA SHALL BE IN ATTENDANCE AT THE ESTABLISHMENT PERIOD INSPECTION. ON-GOING ANNUAL MAINTENANCE OF THE COMPLETED LANDSCAPE SHALL BE BY THE CITY OF TAMPA AFTER FINAL ACCEPTANCE OF THE PROJECT. WARRANTY WILL MEET FDOT REQUIREMENTS.
11. LANDSCAPE MATERIAL AND ASSOCIATED DEVICES SHALL BE ADJUSTED IN THE FIELD TO AVOID CONFLICTS WITH ALL PROPOSED OR EXISTING TO REMAIN UNDERGROUND, SURFACE OR OVERHEAD FEATURES SUCH AS: UTILITIES, DRAINAGE STRUCTURES, DITCHES, UNDER DRAINS, DITCH BLOCKS, STORM WATER FACILITIES, DRAINAGE DISCHARGE PATHS, TRAFFIC SIGNAGE AND LIGHTING. IF A CONFLICT EXISTS, THE CONTRACTOR SHALL NOTIFY CITY OF TAMPA PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOT KNOWINGLY PLACE IMPROVEMENT IF A CONFLICT EXISTS. ANY COSTS TO REMOVE AND/OR REPAIR WORK THAT HAS NOT BEEN APPROVED BY THE CITY OF TAMPA SHALL BE AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL NOT BRING ANY HAZARDOUS MATERIALS ON TO THE PROJECT. SHOULD THE CONTRACTOR REQUIRE SUCH FOR PERFORMING THE CONTRACT WORK, THE CONTRACTOR SHALL REQUEST, IN WRITING, PERMISSION FROM THE CITY OF TAMPA AND THE DISTRICT CONTAMINATION IMPACTS COORDINATOR (DCIC). THE CONTRACTOR SHALL SUBMIT A MATERIALS SAFETY DATA SHEET (MSDS) FOR EACH HAZARDOUS MATERIAL. STATE LAW DOES NOT CONSIDER PETROLEUM PRODUCTS THAT ARE PROPERLY CONTAINERIZED AND INTENDED FOR EQUIPMENT USE AS A HAZARDOUS MATERIAL.
13. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND ON THE PROJECT BY THE CONTRACTOR SHALL BE IMMEDIATELY REPORTED TO FDOT DISTRICT LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE CONTRACTOR SHALL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE CITY OF TAMPA AS ADVISED BY THE DCIC.
14. ALL LANDSCAPE MATERIAL SHALL BE INSTALLED AND AT ALL TIMES MAINTAINED IN ACCORDANCE WITH FDOT STANDARD INDEXES AND SPECIFICATIONS 102, 546, 600 AND 700 SERIES AND AS DESCRIBED IN PRODUCT ITEM NOTES.
15. ALL LANDSCAPE MATERIAL SHALL BE INSTALLED AND AT ALL TIMES MAINTAINED IN A MANNER WHEREBY TRAFFIC CONTROL SIGNAGE AND DEVICES ARE VISIBLE TO THE MOTORIST. MAINTAIN REFLECTIVE MARKERS AT THE ENDS OF ALL MEDIANS. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO FILE AND OBTAIN ANY AND ALL REQUIRED AGENCY PERMITS BEFORE COMMENCING CONSTRUCTION.
16. THE CITY SHALL CONTACT THE FLORIDA DEPARTMENT OF TRANSPORTATION'S TAMPA MAINTENANCE YARD AT 813-612-3200 AND ONE-CALL AT 811, TWO (2) FULL WORKING DAYS PRIOR TO THE BEGINNING OF WORK. THE CITY SHALL ALSO CONTACT THE TAMPA MAINTENANCE YARD AT 813-612-3200 TWO (2) CALENDAR WEEKS PRIOR TO THE BEGINNING OF WORK TO LOCATE HIGHWAY LIGHTING CONDUIT.
17. THE DEPARTMENT SHALL APPROVE ALL WORK AND LANE CLOSURES TWO (2) FULL WORKING DAYS IN ADVANCE ON A LOCATION BY LOCATION BASIS. THE CONTRACTOR WILL NOTIFY THE TAMPA MAINTENANCE ENGINEER AT (813) 612-3200 IN ORDER TO BEGIN THIS PROCESS FOR THE PROJECT.
18. WORK WITHIN THE FDOT RIGHT-OF-WAY SHALL BE PERFORMED M-F BETWEEN THE HOURS OF 9:00 AM AND 3:00 PM. WORK SHALL NOT OCCUR ON CITY AND STATE HOLIDAYS UNLESS OTHERWISE APPROVED.
19. THE CONTRACTOR SHALL PROVIDE THE CITY OF TAMPA CONSTRUCTION MANAGER AND THE DEPARTMENT WITH THE NAME, CONTACT TELEPHONE NUMBER, E-MAIL ADDRESS, AND ADVANCED TRAINING CERTIFICATE OF THE QUALIFIED INDIVIDUAL(S) WHO WILL BE THE WORK ZONE M.O.T. SAFETY SUPERVISOR.
20. THE CONTRACTOR SHALL NOTIFY CITY OF TAMPA OF ANY CONDITIONS THAT WOULD PREVENT THE HEALTHY GROWTH OF PLANT SPECIES CALLED FOR ON THE DRAWINGS. THIS NOTIFICATION MUST OCCUR PRIOR TO CONTRACT AWARD.
21. IF ANY DISCREPANCIES OCCUR BETWEEN QUANTITIES CALLED FOR ON THE PLANT LIST AND THOSE INDICATED ON THE DRAWINGS, THE DRAWINGS QUANTITY SHALL GOVERN.
22. TREE STAKING IS REQUIRED WITH 4 STAKES PER TREE. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR STRAIGHTENING TREES DURING THE 90 DAY MAINTENANCE PERIOD. THE CITY WILL STRAIGHTEN DURING THE 365 ESTABLISHMENT PERIOD.
23. PLEASE REFER TO CITY OF TAMPA SPECIFICATIONS FOR DETAILED INFORMATION ON PLANTING AND IRRIGATION.
24. THE CONTRACTOR'S EMPLOYEES SHALL BE FULLY LICENSED BY THE STATE OF FLORIDA TO APPLY PESTICIDES. ALL CHEMICALS SHALL BE HANDLED IN STRICT ACCORDANCE WITH THE FEDERAL, STATE AND COUNTY REGULATIONS. CONTRACTOR SHALL USE SOUND CULTURAL PRACTICES THAT AID IN MINIMIZING THE PRESENCE OR PROLIFERATION OF INSECT AND DISEASE.

25. THE CONTRACTOR SHALL CONTACT MARK NEUBERGER (813-478-5280) TO ENSURE THAT THE IRRIGATION SYSTEM IS OPERATIONAL BEFORE AND AFTER PLANTING.
26. UNLESS OTHERWISE DETERMINED BY THE FDOT, ANY LANE CLOSURES SHALL BE RESTRICTED:  
-DURING NIGHT TIME HOURS (IF APPLICABLE) FROM 9:00 PM TO 5:30 AM ON WEEK NIGHTS ONLY.  
-NO WORK SHALL BE PERFORMED ON STATE HOLIDAYS.
27. APPLICATION OF HERBICIDES SHALL BE PERFORMED BY A PERSON POSSESSING A CURRENT FLORIDA RESTRICTED USE PESTICIDE LICENSE IN THE CORE CURRICULUM, RIGHT OF WAY AND AQUATIC CATEGORIES.
28. PURSUANT TO SECTION 2.10 OF THE DEPARTMENT'S "ROADWAY AND ROADSIDE MAINTENANCE" PROCEDURE (TOPIC NO. 850-000-015-1 OF 1/1/2014), ALL CONTRACTORS WHO CONTRACT THE APPLICATION OF FERTILIZER SHALL ENSURE THAT THEY ARE LICENSED COMMERCIAL APPLICATORS WHO HAVE BEEN TRAINED THROUGH THE GREEN INDUSTRY BMP PROGRAM, AND HAVE OBTAINED A LIMITED CERTIFICATION FOR URBAN COMMERCIAL FERTILIZER UNDER SECTION 481.1562, F.S. THE CONTRACTOR SHALL FURNISH THE FDOT CURRENT COPIES OF LICENSES/CERTIFICATES BELONGING TO PERSONNEL THAT WILL BE INVOLVED IN THE APPLICATION OF FERTILIZER ON THE FDOT RIGHT OF WAY PRIOR TO THE START OF WORK.
29. LANDSCAPE SHRUBS AND GROUND COVER SHALL BE MAINTAINED AT ALL TIMES WHEREBY THEIR FOLIAGE IS KEPT TRIMMED TO THE INSIDE EDGE OF CURBS AT ALL MEDIAN LOCATIONS.
30. TREES SHALL BE MAINTAINED AT ALL TIMES IN A MANNER WHEREBY THERE IS AN 14.5' VERTICAL CLEARANCE BETWEEN THE GRADE OF THE TRAVEL LANE/WAY AND THE BOTTOM CANOPY OF FOLIAGE.
31. THE CITY SHALL MAINTAIN AT ALL TIMES ALL U.S. AIR FORCE INSIGNIAS IN A MANNER WHEREBY THEY WILL CLEARLY AND ACCURATELY DEFINE AND REINFORCE EACH INSIGNIA'S DESIGN (REF. LANDSCAPE INSIGNIA DETAILS AS DEPICTED IN SHEETS L-23 THROUGH L-30)

UTILITY NOTES

1. THE LOCATIONS OF THE UTILITIES SHOWN ON THE PLANS ARE BASED ON LIMITED INVESTIGATION AND SHOULD BE CONSIDERED APPROXIMATE ONLY.
2. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS THROUGH SUNSHINE ONE CALL OF FLORIDA, INC. (1-800-432-4770) AND REQUEST LOCATES TWO BUSINESS DAYS PRIOR TO PLANTING. SHOULD A CONFLICT WITH UTILITIES BE FOUND, THE CONTRACTOR SHALL NOTIFY CITY OF TAMPA TO ADJUST PLANT MATERIALS TO AVOID CONFLICTS PRIOR TO PLANTING.
3. IF FIBER OPTICS/ITS DEVICES ARE DAMAGED DURING CONSTRUCTION, LINES MUST BE REPLACED FROM HUB TO HUB OR CLOSEST SPLICER TO CLOSEST SPLICER. CONTACT FDOT FOR FIBER OPTIC CONTACT.
4. A UTILITY REPRESENTATIVE SHALL BE PRESENT IF LANDSCAPING NEAR A UTILITY REQUIRES ANY EXCAVATION GREATER THAN 36 INCHES DEPTH.
5. TECO SHALL BE THE UTILITY PERMITTEE FOR THE IRRIGATION METER. CONTRACTOR SHALL CALL THE TECO ONE SOURCE DEPARTMENT AT 813-635-1500 TO REQUEST TO HAVE A METER SET. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A TECO WORK REQUEST NUMBER FOR THE PROJECT.
6. ALL TREE PITS TO BE HAND DUG.
7. CLEARANCE BETWEEN ALL TREES AND WATER MAINS SHALL MEET CITY OF TAMPA PARKS DEPARTMENT LATEST REQUIREMENTS. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF INSTALLED OR EXISTING WATER MAINS.

DESIGN NOTES

MACDILL AFB TO INTERBAY BLVD.: STATION 31+00 TO STATION 48+00  
 DESIGN SPEED: 40 MPH  
 POSTED SPEED: 35 MPH  
 VEHICLE: SU  
 NOTE: ALL COMB TRUCK TRAFFIC ROUTED FROM DALE MABRY TO INTERBAY BLVD. MACDILL AFB ENTRY NEAR LOIS AVE.

INTERBAY BLVD. TO GANDY BLVD.: STATION 48+00 TO STATION 125+00  
 DESIGN SPEED: 45 MPH  
 POSTED SPEED: 45 MPH  
 VEHICLE: COMB

- HORIZONTAL CLEARANCE INSIDE MEDIANS: 6 FEET FROM EDGE OF TRAFFIC LANE  
 - PALM SPACING: 135 FEET  
 - 100' AREAS AT MEDIAN TIPS ARE LIMITED TO GROUND COVER/LOW GROWING SHRUBS.  
 - INTERSECTION SIGHT LINES SHOWN ON PLANS. ENTIRE CORRIDOR IS WITHIN CLEAR SIGHT LIMITS OF INTERSECTIONS.

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PROJECT NOTES	SHEET NO.  L-2
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

PLANT LIST

SCIENTIFIC NAME	COMMON NAME	QTY	SIZE	SPACING	COMMENTS	MATURE/MAINTAINED HEIGHT
<b>TREES *</b>						
Bismarckia nobilis	Bismarck Palm	10	Field Grown	135' o.c.	16' Clear Trunk, 28'-30' OA, 36" rootballs. Full heads. Hardened off. Matched.	40' - 50'
<b>SHRUBS/GROUNDCOVERS/GRASSES *</b>						
Juniperus conferta 'Blue Pacific'	Compact Shore Juniper	1,126	3 gallon	3' o.c.	4" ht., 8"-12" spd., Full dense foliage.	12"
Liriope muscari 'Super Blue'	'Super Blue' Liriope	4,236	1 gallon	12" o.c.	10" ht, 12" spd., Full dense foliage, Purple flowers.	18"
Mimosa strigillosa	Sunshine Mimosa	56,490	1 gallon	8" o.c.	1" ht., 6" spd., Full dense foliage.	3"
Raphiolepis indica 'Alba'	Dwf. Indian Hawthorn	812	3 gallon	30" o.c.	10"-12" ht., 15" spd., Full dense foliage, White flowers.	18"
Tradescantia pallida 'Purpurea'	Purple Queen	9,539	1 gallon	12" o.c.	4"-5" ht., 6"-7" spd., Full dense foliage.	12"
Tradescantia spathacea 'Dwarf 'Tricolor'	Tricolor Dwf. Oyster Plant	7,592	1 gallon	12" o.c.	6" ht., 5" spd., Full dense foliage, Sun grown.	12"
<b>ADDITIONAL ITEMS</b>						
Melaleuca Mulch				+/- 699 cubic yards	3" deep all beds as shown	
Crushed Oyster Shell, 1/2" Inland shell.				+/- 14.8 cubic yards	2" deep all beds as shown	
Black Gravel, Twilight, 1/4" x 1/8"				+/- 1.43 cubic yards	2" deep all beds as shown	
Permalock Edging. Cleanline, 1/8" x 4", Blk Duraflex finish or approved equal				+/- 14,325 linear feet	Edging around Mimosa and Purple Queen beds, and edge black gravel channels.	
Hillary Peat Landscape Mix or approved equal				+/- 1,434 cubic yards	6" deep all beds. Contractor to calculate quantity as Per Specs	
Agriform 20-10-5 Fertilizer Tablet 21-gm size or approved equal				170 boxes (500 per box)	Contractor to calculate quantity as Per Specs	
Diehard Palm Transplant Soil Amendment or approved equal				1 bag (25lb bag)	Contractor to calculate quantity as Per Specs	
Diehard Transplant Soil Amendment or approved equal				204 boxes (25lb bulk)	Contractor to calculate quantity as Per Specs	

\* ALL MATERIAL TO BE APPROVED BY CITY REPRESENTATIVE PRIOR TO INSTALLATION.

PLANTING NOTES

1. Angled beds are set at 45 degree angle from curb.
2. Plant beds as described in drawings and specifications.
3. Apply Agriform fertilizer per manufacturer specifications to all plants during planting.
4. Two weeks after planting, apply a pre-emergent weed control, per manufacturers specifications.
5. Do not apply the pre-emergent within five feet of new palms.
6. Add three inches of Melaleuca mulch to all beds.
7. Mulch finish grade shall be one inch below adjacent curb.

BED PREPARATION NOTES

1. Remove all debris.
2. Remove approximately nine to ten inches of existing soil.
3. Treat all beds with Glyphosate based systemic herbicide.
4. Disc/rototill beds to a three inch depth.
5. Rough grade all beds and remove visible plant materials.
6. Herbicide all beds lightly for remainder weeds/grass.
7. Add six inches of Hillary Peat Landscape Mix.
8. Soil finish grade shall be four inches below adjacent curb.
9. Beds shall be weed free at time of planting.

PRODUCT ITEM NOTES

1. Landscape Mix: Hillary Peat Landscape Mix (or equal) is a specified mix that contains 60% peat, 20% Wood Products, and 20% Compost. The product is available from Hillary Peat Company, 352.429.2409. Apply Soil to a depth of 6 inches to all beds.
2. Black Gravel: Black gravel is available through Conrad Yelvington, 954.325.3613. Apply gravel to a depth of 2 inches per plans. Color: Twilight. Size: 1/4" x 1/8".
3. Crushed Oyster Shell: Crushed oyster shell is available through Conrad Yelvington, 954.325.3613. Apply shell to a depth of 2 inches per plans. Size: 1/2" Inland shell.
4. Mycorrhizal Soil Amendment: Mycorrhizal soil amendment products are available through Horticultural Alliance, 800.628.6373. Apply mycorrhizal soil amendments per manufacturer recommended rates to all palms, shrubs and groundcovers. Mix product with back fill in the upper 1/3 of planting hole. Ensure that the product is next to the roots.
  - DIEHARD Transplant (or approved equal) mychorrhizal soil amendment shall contain seven species of endomycorrhizae, at least two species of ectomycorrhizae, bacteria (comprised of bacillus, psuedomonas and streptomyces), trichoderma, 21% humid acid, 10% sea kelp, 4% yucca and 29% co-polymer gel.
  - DIEHARD Palm Transplant (or approved equal) shall contain seven species of endomycorrhizae, bacteria (comprised of bacillus, psuedomonas and streptomyces), trichoderma, 3% humic acid, 4% sea kelp, 1% yucca and 25% co-polymer gel.
5. Mulch: Apply mulch to a 3 inch depth to all plants and trees. Mulch shall be Melaleuca mulch. Install mulch to cover planting bed areas. Much shall be free of debris and weeds. The use of Cypress mulch is prohibited.
6. Pre-Emergent Herbicide: Apply pre-emergent granular herbicide to all planting beds. The herbicide active ingredients shall be suitable for controlling annual and perennial broadleaf weeds and grasses. Apply pre-emergent herbicide by hand at the manufacturer recommended rate after planting and before placing mulch. Submit proof of application I.E, tickets and representative photos for FDOT approval.
7. Fertilizer: Agriform tablets (or approved equal) per manufacturer recommendations.
8. Permalock Edging: Permalock edging materials (or approved equal) are available through Permalock Corporation at 1.800.356.9660.
9. Water: During installation, plants shall be watered in by hand to prevent air pockets. Water for plant establishment shall be provided per FDOT standard specifications. The Contractor shall provide the water source. Water wells may be drilled on FDOT right of way. The contractor shall install a permanent irrigation system per plans and specifications.

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  L-3
DATE	DESCRIPTION	DATE	ROAD NO.		COUNTY	FINANCIAL PROJECT ID		
			573		HILLSBOROUGH	436634-2-58-01		

*PLANT LIST AND NOTES*

TECHNICAL MAINTENANCE PLAN

OPERATION	90 DAY MAINTENANCE WEEKLY CYCLE												CITY OF TAMPA COMMITMENT FOR 365 ESTABLISHMENT CYCLE														
	1	2	3	4	5	6	7	8	9	10	11	12	4	5	6	7	8	9	10	11	12	13	14	15			
WATERING	6	6	5	5	5	4	4	4	4	4	3	3	3	12	9	8	5	4	4	4	4	4	4	2	2		
	Truck watering shall be performed each week of the 90 day maintenance period at the frequency indicated if sufficient irrigation is not available at time of planting. See Chart below for Water Application Rates. Saturate planting bed completely.												Apply water with truck sequentially per frequency above minimum. Increase watering during drought and as needed to insure health and vigor of all plant materials. Adjust and maintain automatic irrigation system. Prevent over spray into the travel lane.														
WEEDING/ LITTER PICKUP	X				X					X			X	X	X	X	X	X	X	X	X	X	X	X			
	Weed and pick up litter in all planting beds and tree wells once in each four week period min. and before the end of the 90 day maintenance period.												Weed beds every 30 days minimum using an approved herbicide such as 'Round Up' or equal with blue indicator color applied by a licensed applicator per manufacturer recommendations. Perform litter pick up in beds prior to herbicide application.														
PRUNING	Prune and trim existing trees and and palms to remain in bed areas during bed preparation. All pruning to be performed by an ISA certified arborist per ANS A300 guidelines and UF/IFAS proper horticultural practices.												Maintain 14.5' vertical clearance over travel lanes and 8.0' min. clearance over sidewalks. Maintain 8.5' foliage height for trees and 24 inch ground cover height above travel lane in clear sight window areas per FDOT Index 546. Palms to be trimmed at end of 365 Day period in addition to clearance maintenance.														
FERTILIZING	All trees, palms, shrubs and ground covers to be fertilized at time of installation or within 30 days per specifications.												Trees, shrubs and groundcovers to be fertilized once per year before the 'black out' period (June 1 to September 30). Bismarck Palms to be fertilized 3 times per year (March, July, October). July treatment to be a fertilizer with minor elements, no phosphorus, no nitrogen. Provide insect and disease control inspections biannually minimum and treat as needed.														
MOWING	N/A												N/A														
EDGING	Every 14 days during 90 day maintenance period.												Every 30 days by mechanical means.														
MULCHING	Apply a 3" depth layer of specified mulch to each planting bed immediately after installation operations are complete.												Apply a 3" depth layer of mulch at end of the 365 Day period for inspection.														

WATER APPLICATION RATES

Trees	30 gallons p/tree. Flood/irrigate tree well.
Palms	50-75 gallons p/tree. Flood/irrigate tree well.
Shrubs	5 gallons per plant, sprayed over entire planting bed.
Ground Cover (1 gal.)	2 gallons per plant, sprayed over entire planting bed.

FERTILIZER APPLICATION RATES

Trees	Fertilizer per Specifications shall be applied at time of planting and once annually.
Palms	8-2-12 fertilizer w/micronutrients, 100% of N, K and Mg controlled release @ 5lbs. product each application.
Shrubs & Ground Covers	Fertilizer per Specifications shall be applied at time of planting and once annually.

NOTES:

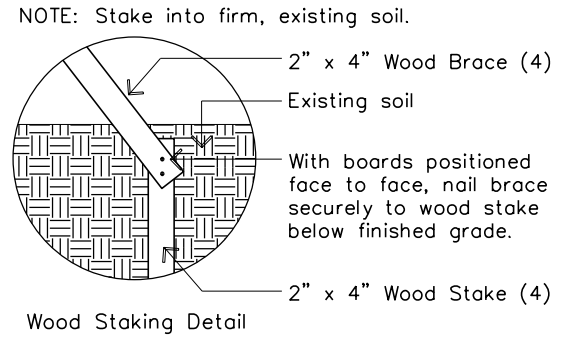
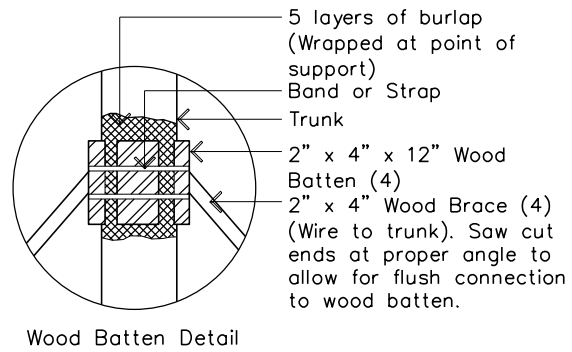
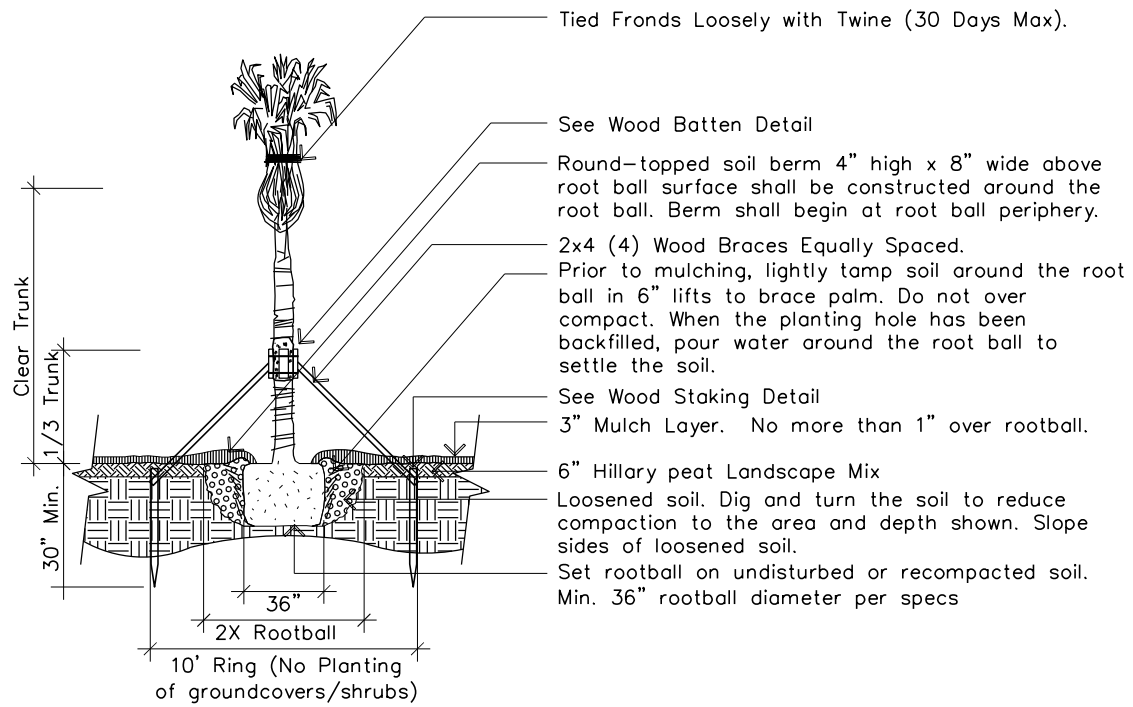
- Contractor to provide 90 day maintenance period and warranty per FDOT requirements.
- City of Tampa to provide 365 day establishment period and warranty per FDOT requirements.
- Annual maintenance cost estimate \$315,098 p/yr, includes 1 mulching.
- Submit work logs on monthly basis during 90 day and 365 day periods.
- Provide Maintenance of Traffic (MOT) per FDOT requirements for work performed in accordance with FDOT Indexes, 600 series, as applicable.
- All work performed M-F between the hours of 9:00AM and 3:00PM.
- Landscape construction is estimated to be a 12 month duration.
- MOT cost estimate \$17,500
- Remove palm ties 30 days after planting.
- City Contractor to remove stakes and guys at end of the 365 day establishment period if palms are sufficiently stabilized to remain in place.
- City to provide ongoing annual maintenance after successful completion of 365 day establishment period and final acceptance of the project by FDOT and City of Tampa authorized representatives.

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  L-4
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					573	HILLSBOROUGH	436634-2-58-01	

**MAINTENANCE PLAN**



**GENERAL NOTES**

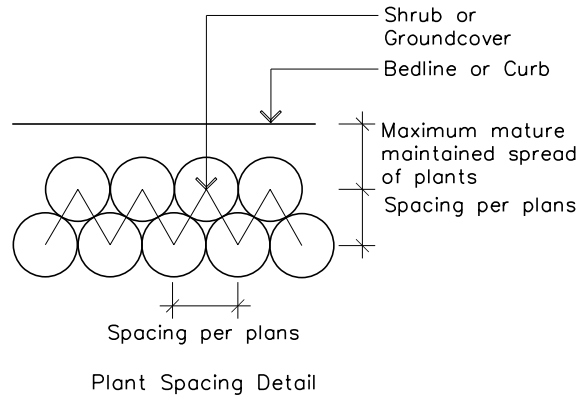
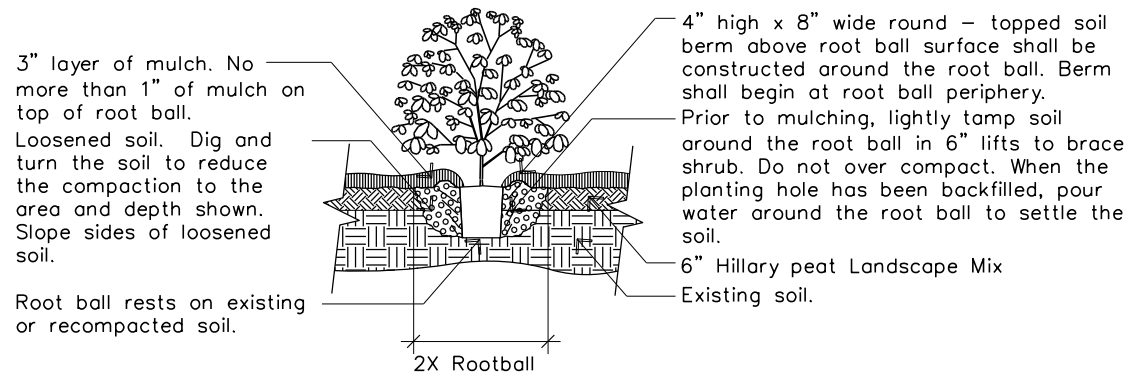
1. Plant containers shall be removed prior to planting. If plants are not container grown, remove a minimum of the top 1/3 of burlap, fabric or wire mesh. Never lift or handle the tree by the trunk.
2. The uppermost root on all trees shall be covered by less than 1" of soil. Use hand tools to remove excess soil. The top of rootball shall be set 1" - 2" above finish grade and set plumb to horizon. If planting pit is too deep, remove the tree and firmly pack additional soil in the bottom of the planting pit. After positioning tree in planting pit, slice through rootballs with 3 or 4 vertical slices (top to bottom) equally distributed around the tree.
3. Prior to backfilling, remove rocks, sticks, or other deleterious material greater than 1" in any direction.
4. A soil ring is required.
5. All wood stakes shall be located beyond the edge of the soil ring and located 30" below finished grade.
6. All dimensions provided for wood stakes are nominal.
7. Remove above ground guying systems at the end of the establishment period.

Notes:  
1- Palms shall be of quality prescribed in crown observations and root observations details and specifications.

2- See specifications for further requirements related to this detail.

**TYPICAL BISMARCK PALM PLANTING DETAIL**

N.T.S.



Notes:  
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.

2- See specifications for further requirements related to this detail.

**TYPICAL SHRUB/GROUNDCOVER PLANTING DETAIL**

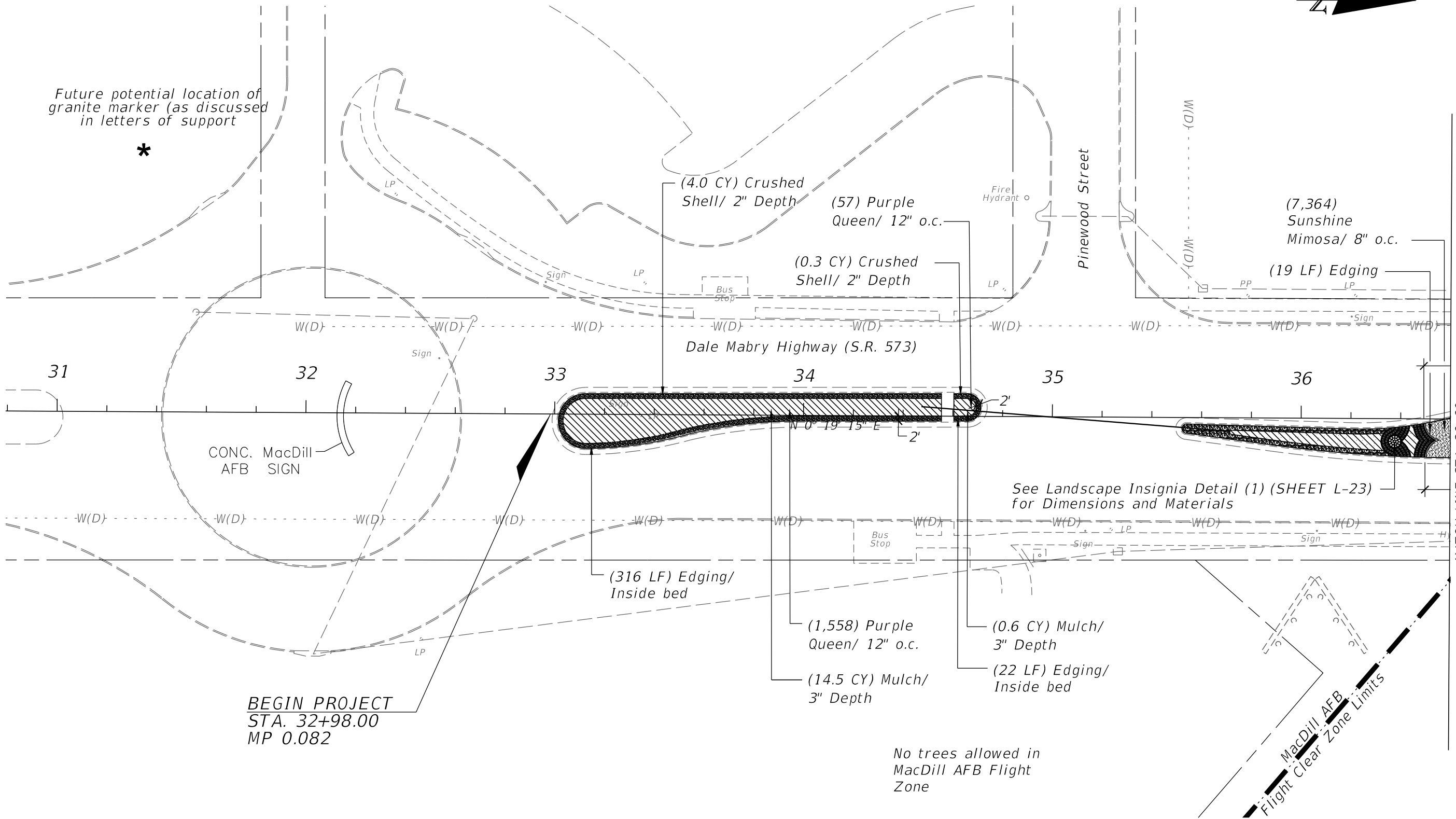
N.T.S.

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-5

SCALE: 1" = 40'



Future potential location of granite marker (as discussed in letters of support)

\*

CONC. MacDill AFB SIGN

BEGIN PROJECT  
STA. 32+98.00  
MP 0.082

No trees allowed in MacDill AFB Flight Zone

See Landscape Insignia Detail (1) (SHEET L-23) for Dimensions and Materials

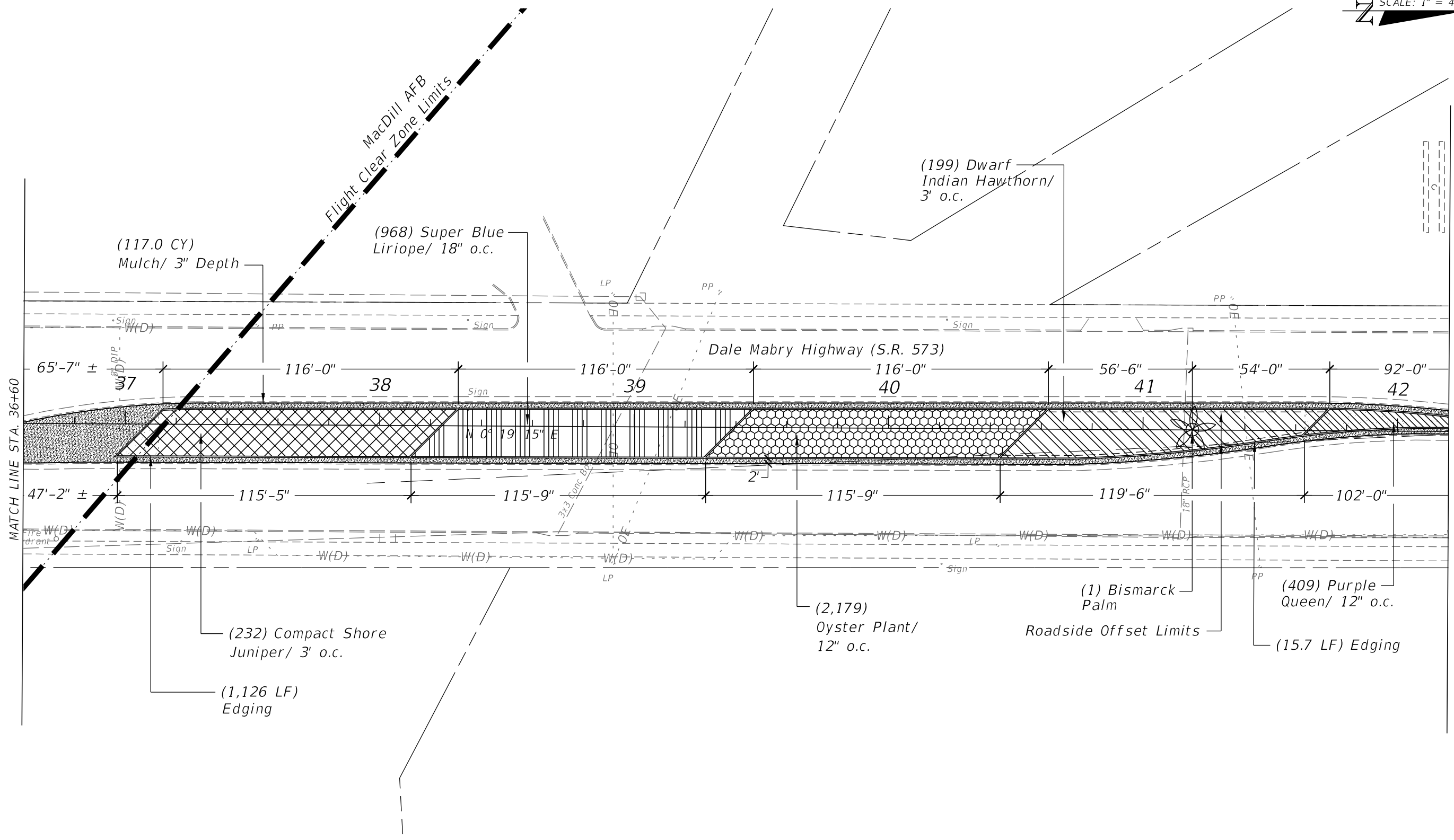
MATCH LINE STA. 36+60

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-6

SCALE: 1" = 40'

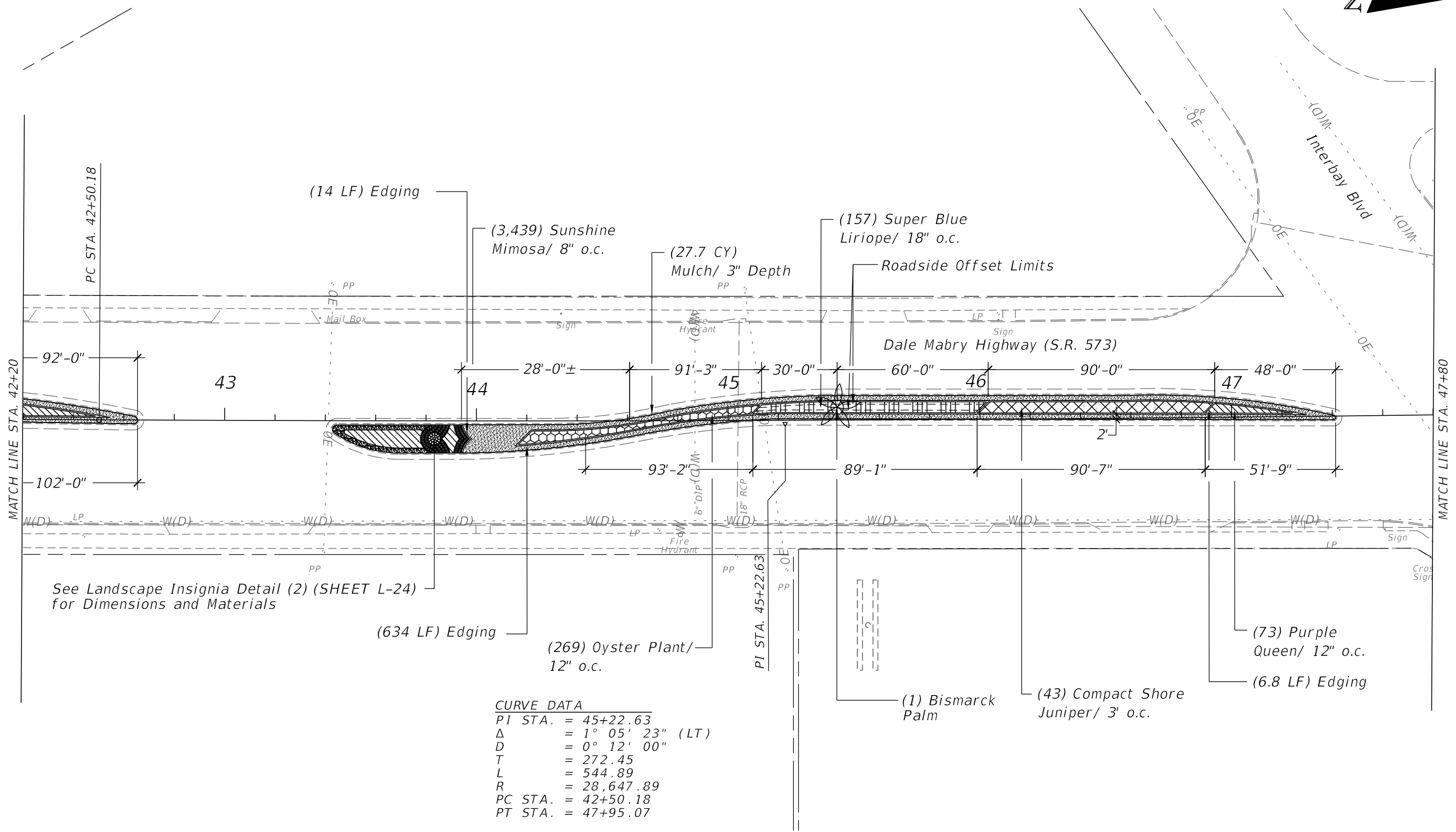


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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-7





**CURVE DATA**

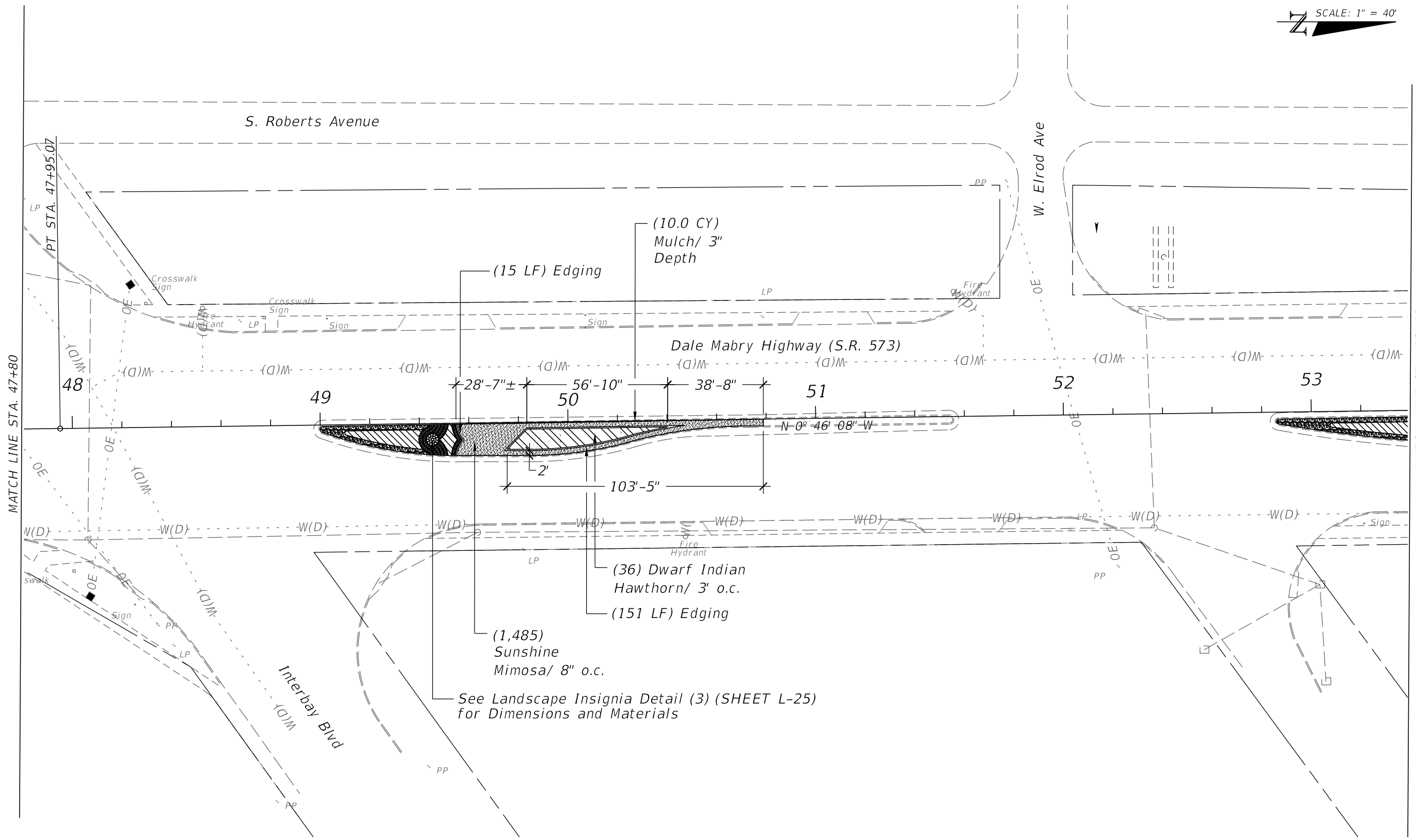
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L	= 544.89
R	= 28,647.89
PC STA.	= 42+50.18
PT STA.	= 47+95.07

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-8

SCALE: 1" = 40'



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DATE	DESCRIPTION	DATE	DESCRIPTION

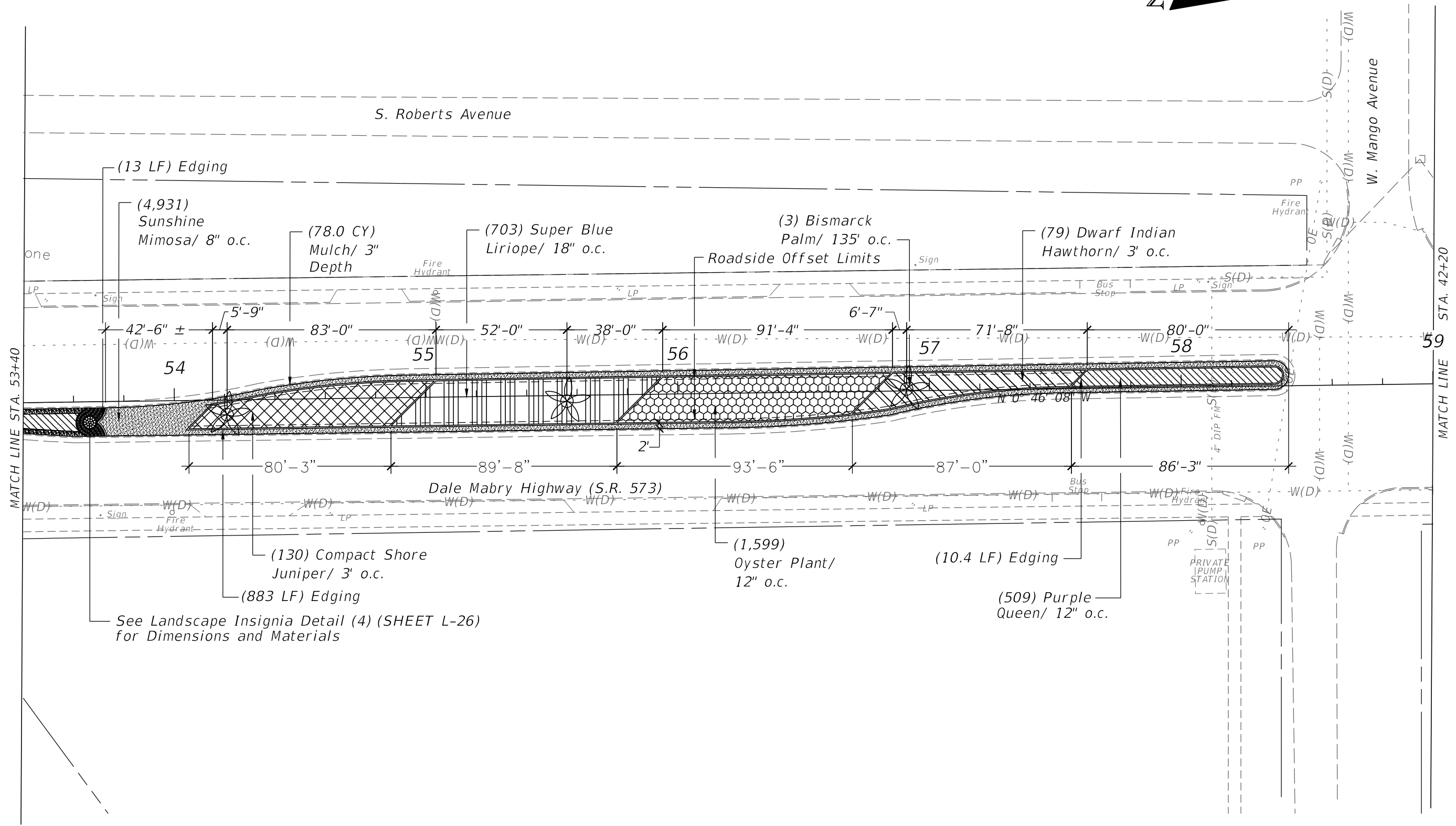
CITY OF TAMPA  
 Parks & Recreation Department  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
 Laurie Potier-Brown, R.L.A.  
 License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (4)**

SHEET NO.  
L-9

SCALE: 1" = 40'



See Landscape Insignia Detail (4) (SHEET L-26) for Dimensions and Materials

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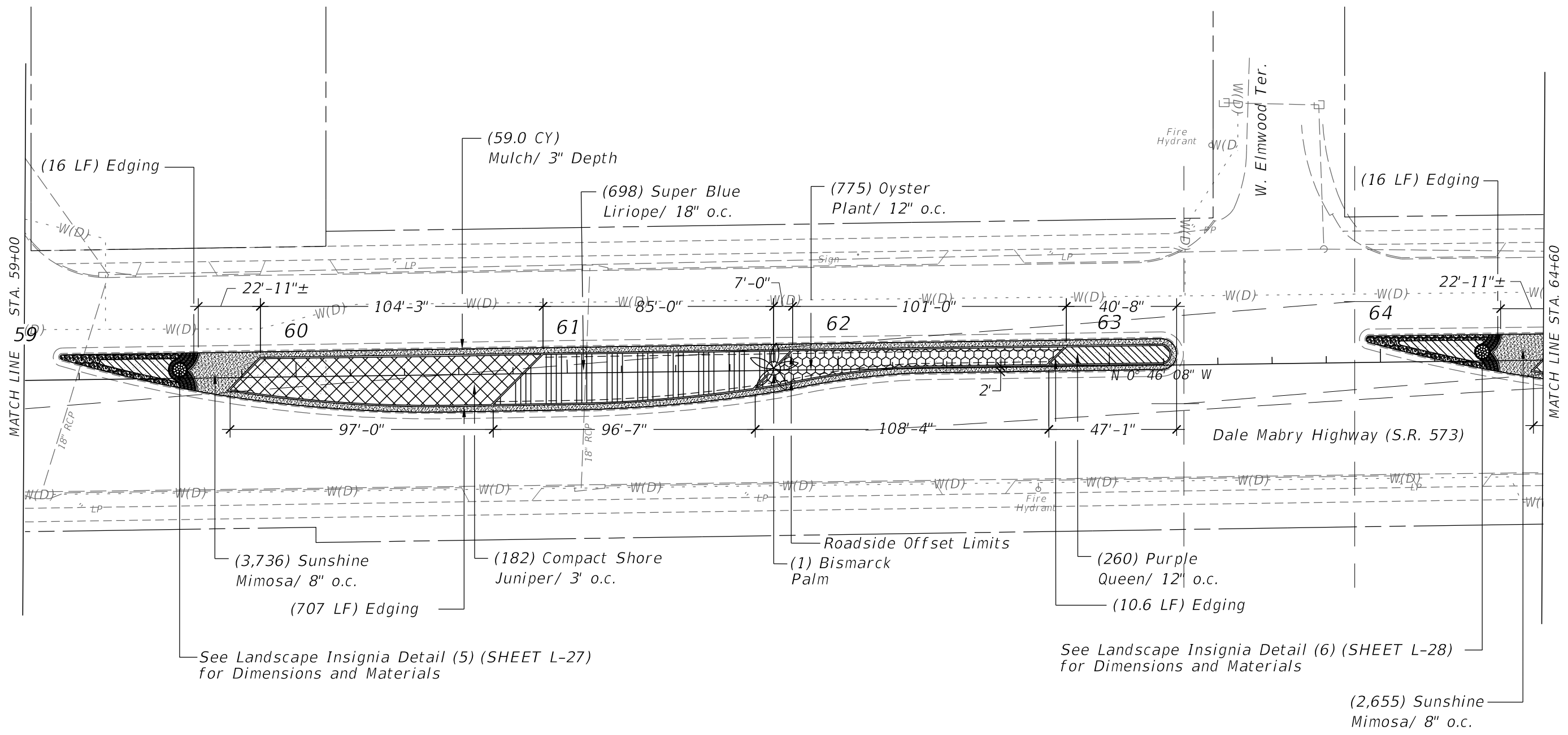
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DATE	DESCRIPTION	DATE	DESCRIPTION

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 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
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 License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (5)**

SHEET NO.  
L-10



See Landscape Insignia Detail (5) (SHEET L-27) for Dimensions and Materials

See Landscape Insignia Detail (6) (SHEET L-28) for Dimensions and Materials

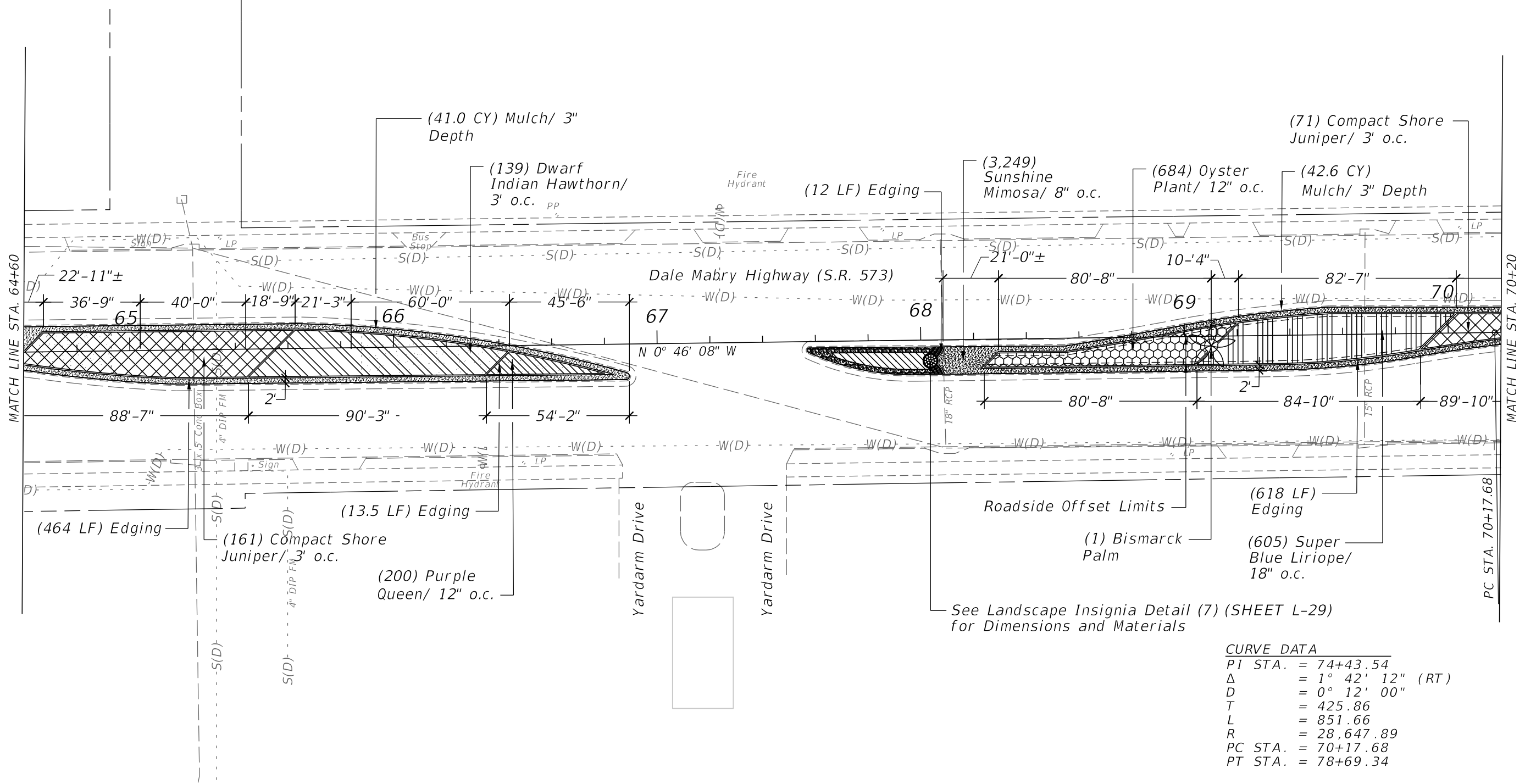
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						573	HILLSBOROUGH		436634-2-58-01

SCALE: 1" = 40'



**CURVE DATA**

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D	= 0° 12' 00"
T	= 425.86
L	= 851.66
R	= 28,647.89
PC STA.	= 70+17.68
PT STA.	= 78+69.34

12/2/2015 11:17:27 AM P:\Projects\023COT\023-117002-43663425801\roadway\PLANRD07.dgn

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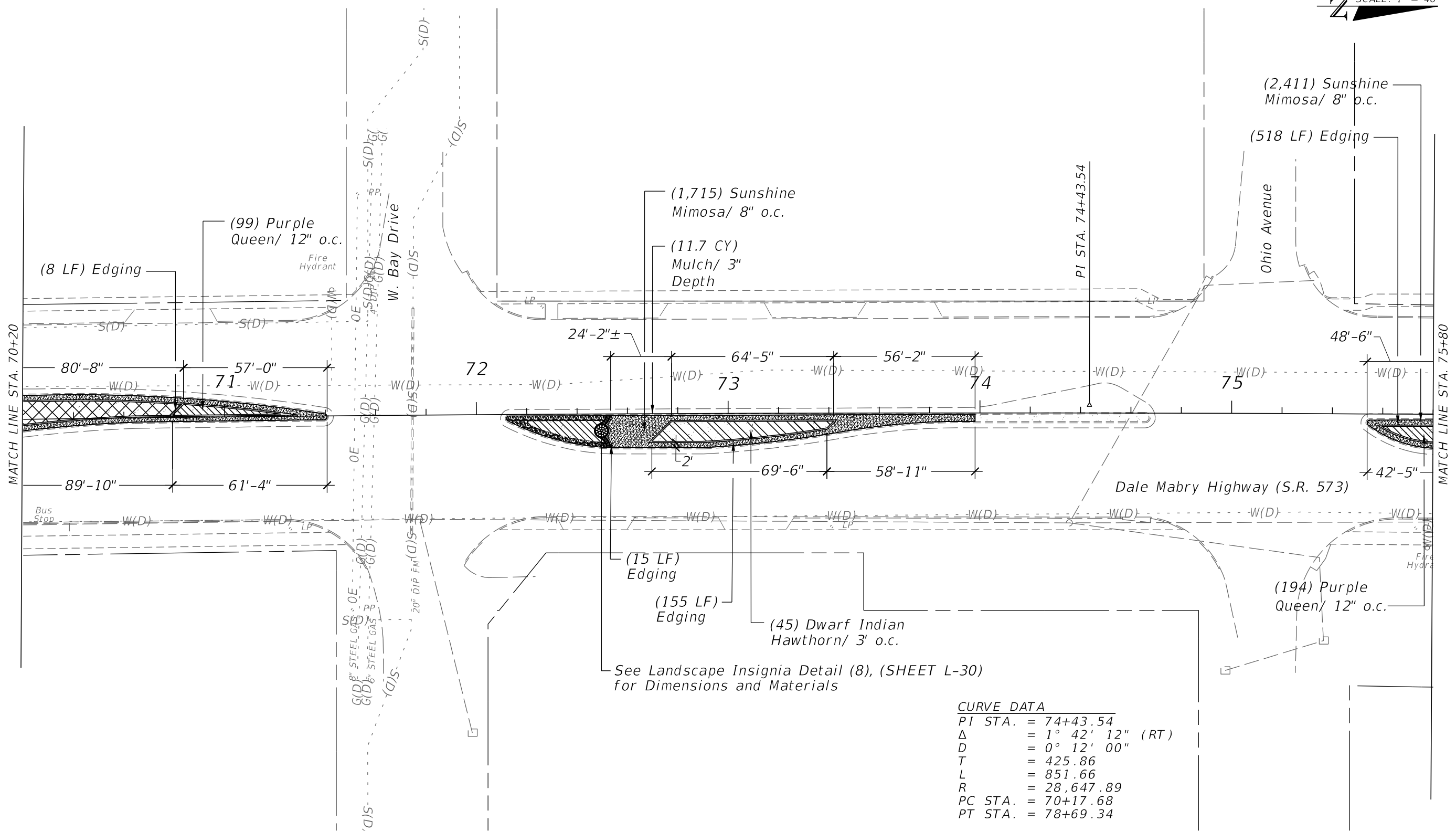
**CITY OF TAMPA**  
Parks & Recreation Department  
3402 W. Columbus Drive  
Tampa, FL 33607  
Phone: 813-274-5137 FAX: 813-274-7429  
Laurie Potier-Brown, R.L.A.  
License No. 0001676

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (7)**

SHEET NO.  
L-12

SCALE: 1" = 40'



See Landscape Insignia Detail (8), (SHEET L-30) for Dimensions and Materials

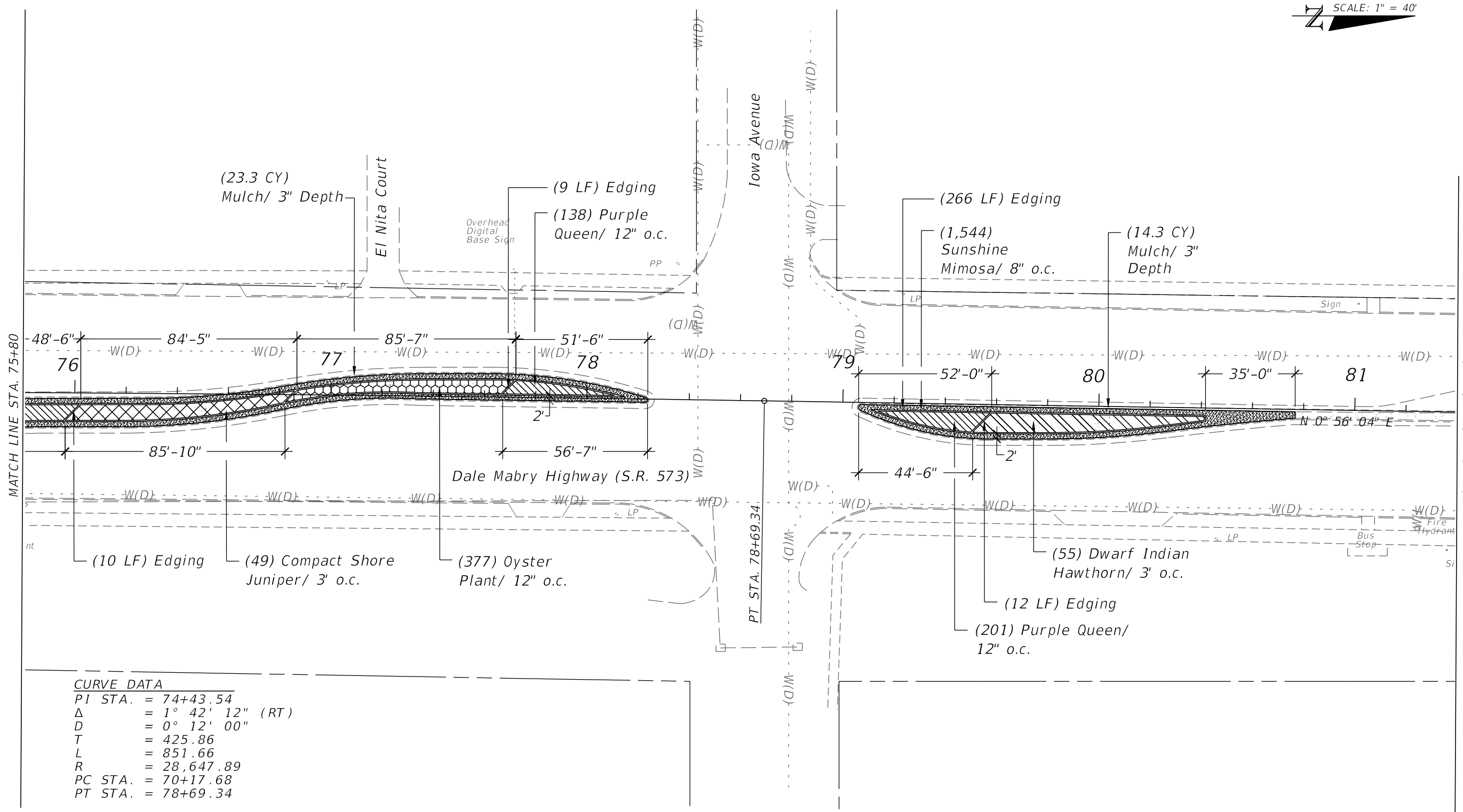
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PC STA.	= 70+17.68
PT STA.	= 78+69.34

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		



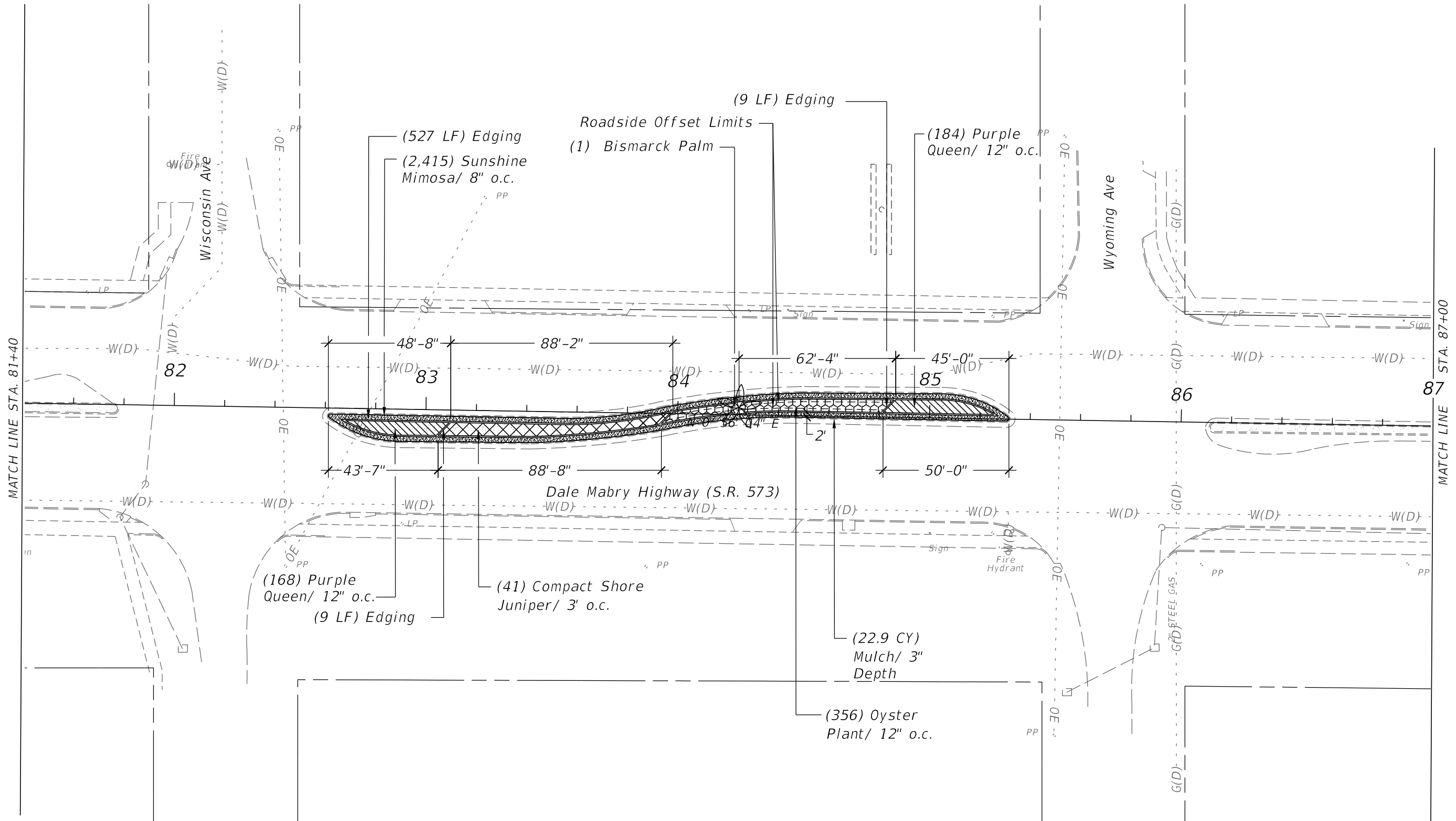
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L	= 851.66
R	= 28,647.89
PC STA.	= 70+17.68
PT STA.	= 78+69.34

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-14
					573	HILLSBOROUGH	436634-2-58-01		



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 License No. 0001676

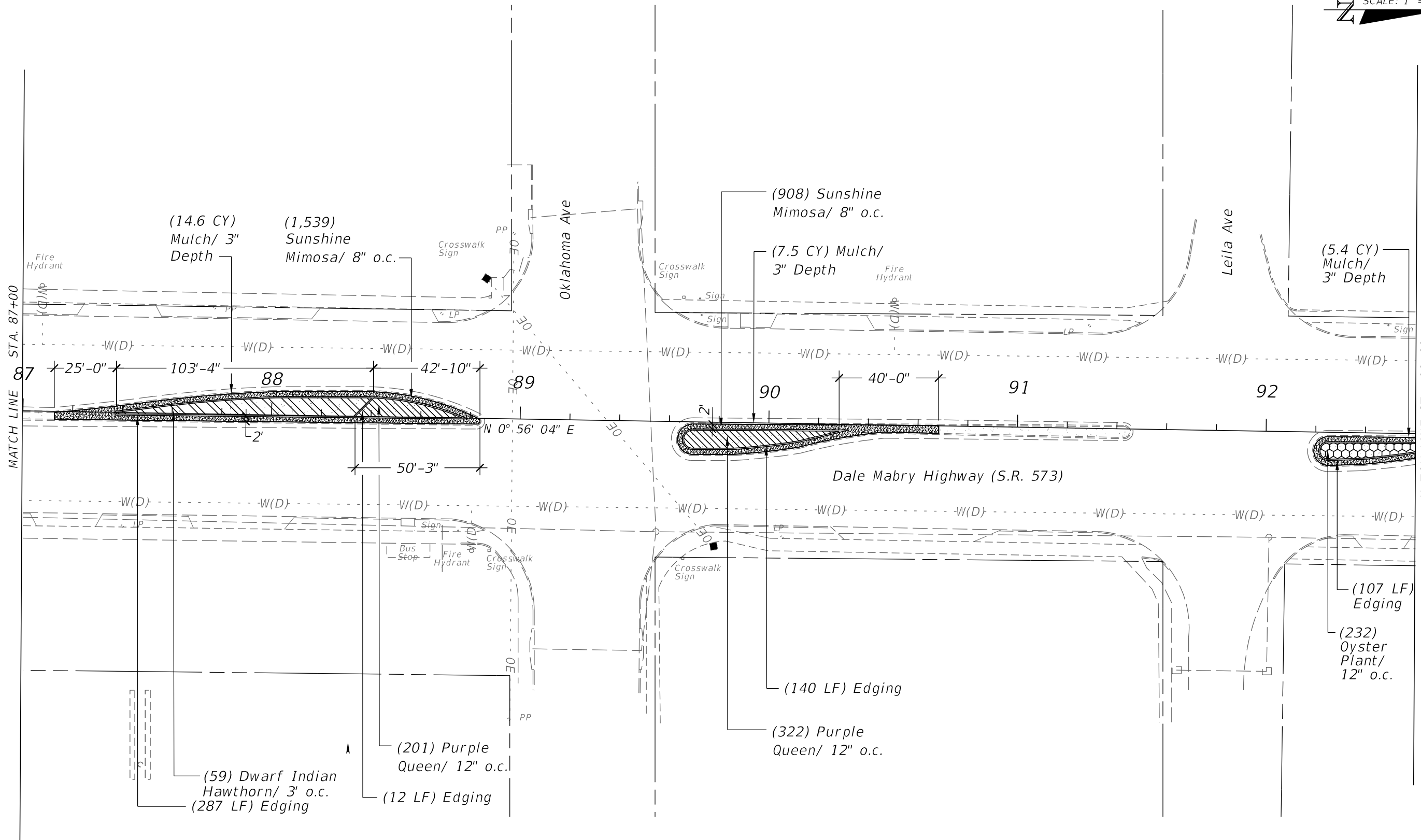
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (10)**

SHEET NO.  
L-15



SCALE: 1" = 40'



12/2/2015 11:17:33 AM P:\Projects\023COT\023-117002-43663425801\roadway\PLANRD11.dgn

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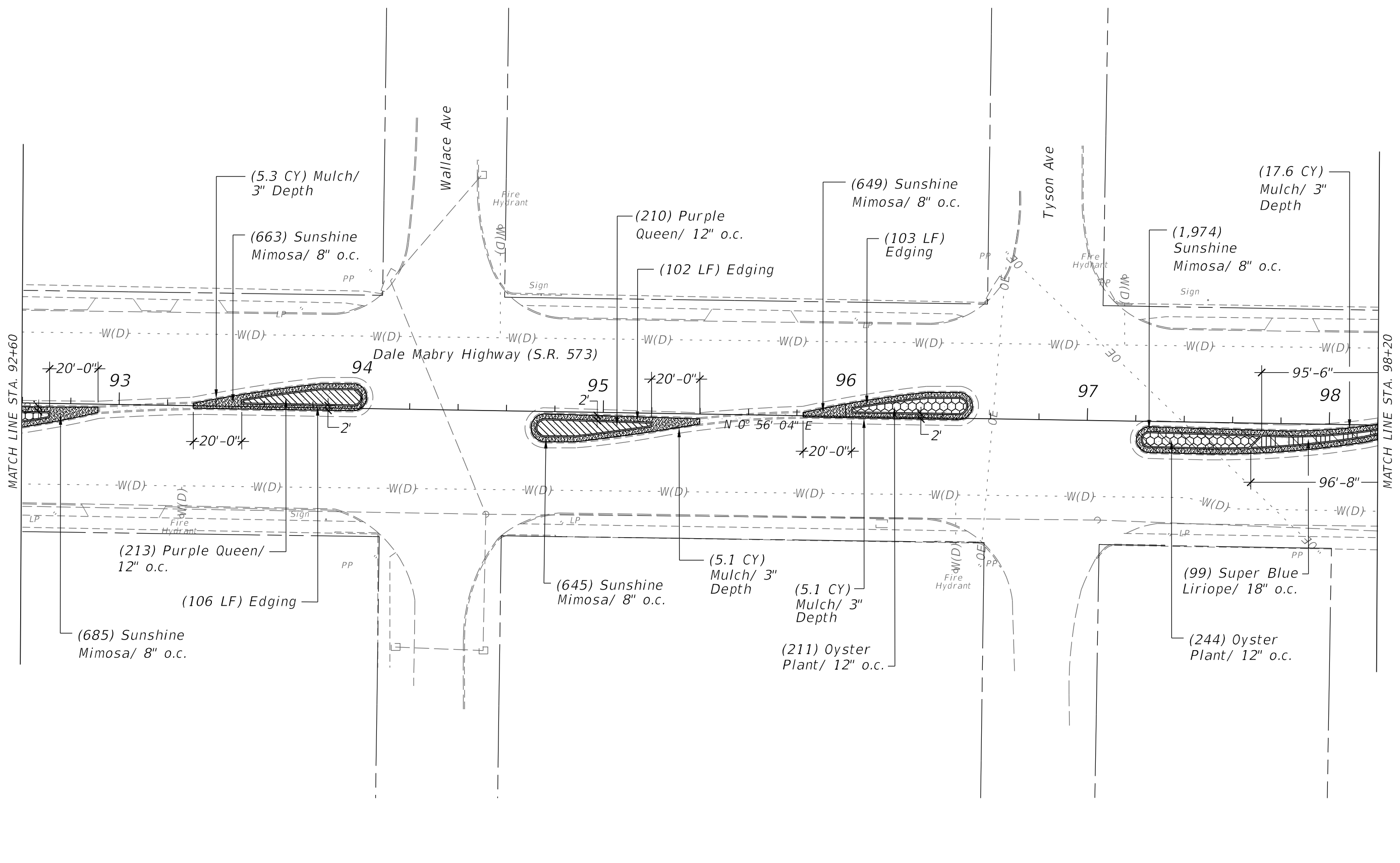
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CITY OF TAMPA  
Parks & Recreation Department  
3402 W. Columbus Drive  
Tampa, FL 33607  
Phone: 813-274-5137 FAX: 813-274-7429  
Laurie Potier-Brown, R.L.A.  
License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

LANDSCAPE PLAN (11)

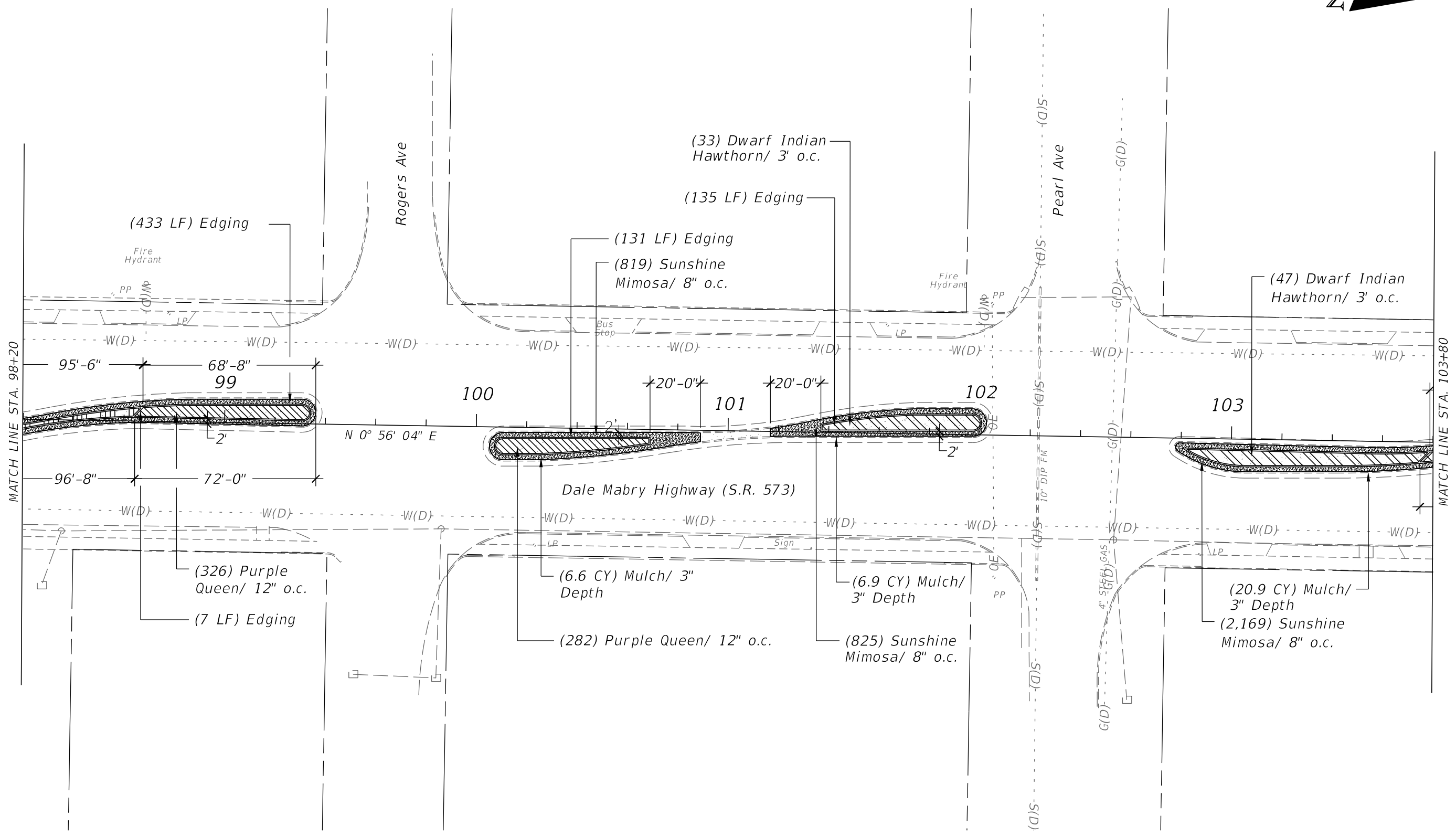
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L-16



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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		



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DATE	DESCRIPTION	DATE	DESCRIPTION

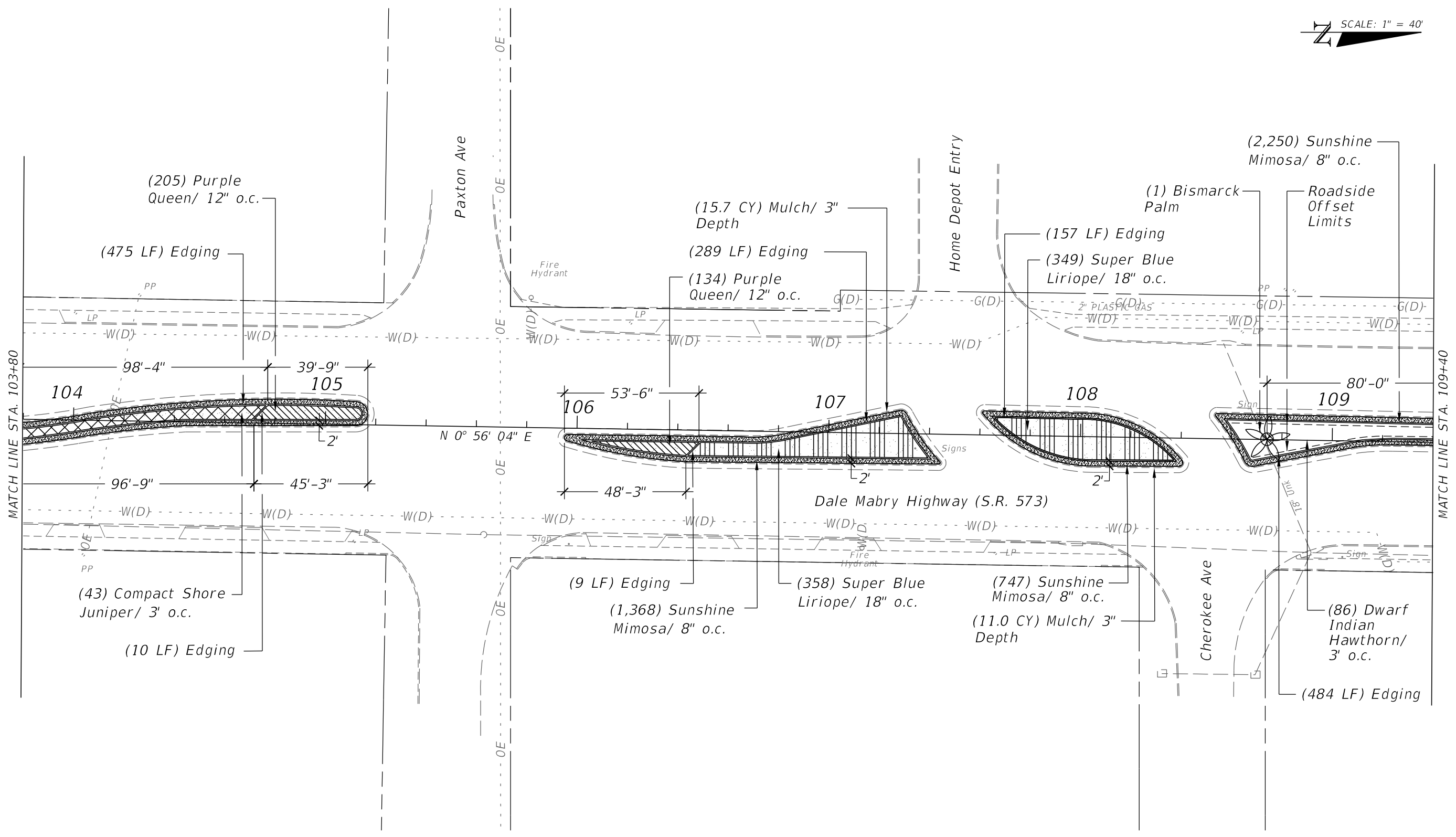
CITY OF TAMPA  
 Parks & Recreation Department  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
 Laurie Potier-Brown, R.L.A.  
 License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (13)**

SHEET NO.  
L-18

SCALE: 1" = 40'



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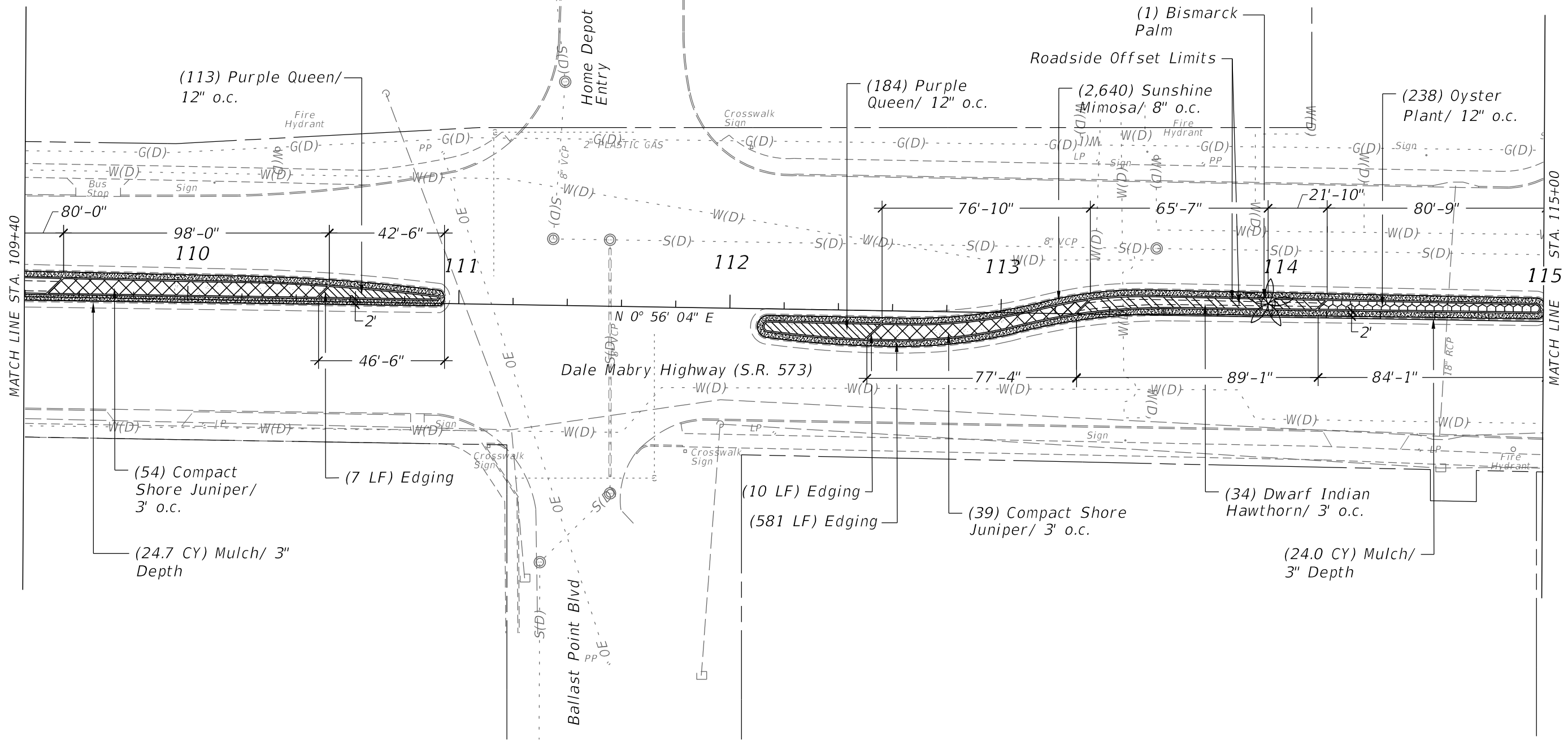
CITY OF TAMPA  
 Parks & Recreation Department  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
 Laurie Potier-Brown, R.L.A.  
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (14)**

SHEET NO.  
L-19

SCALE: 1" = 40'



12/2/2015 11:17:40 AM P:\Projects\023\023-117002-43663425801\roadway\PLANRD15.dgn

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DATE	DESCRIPTION	DATE	DESCRIPTION

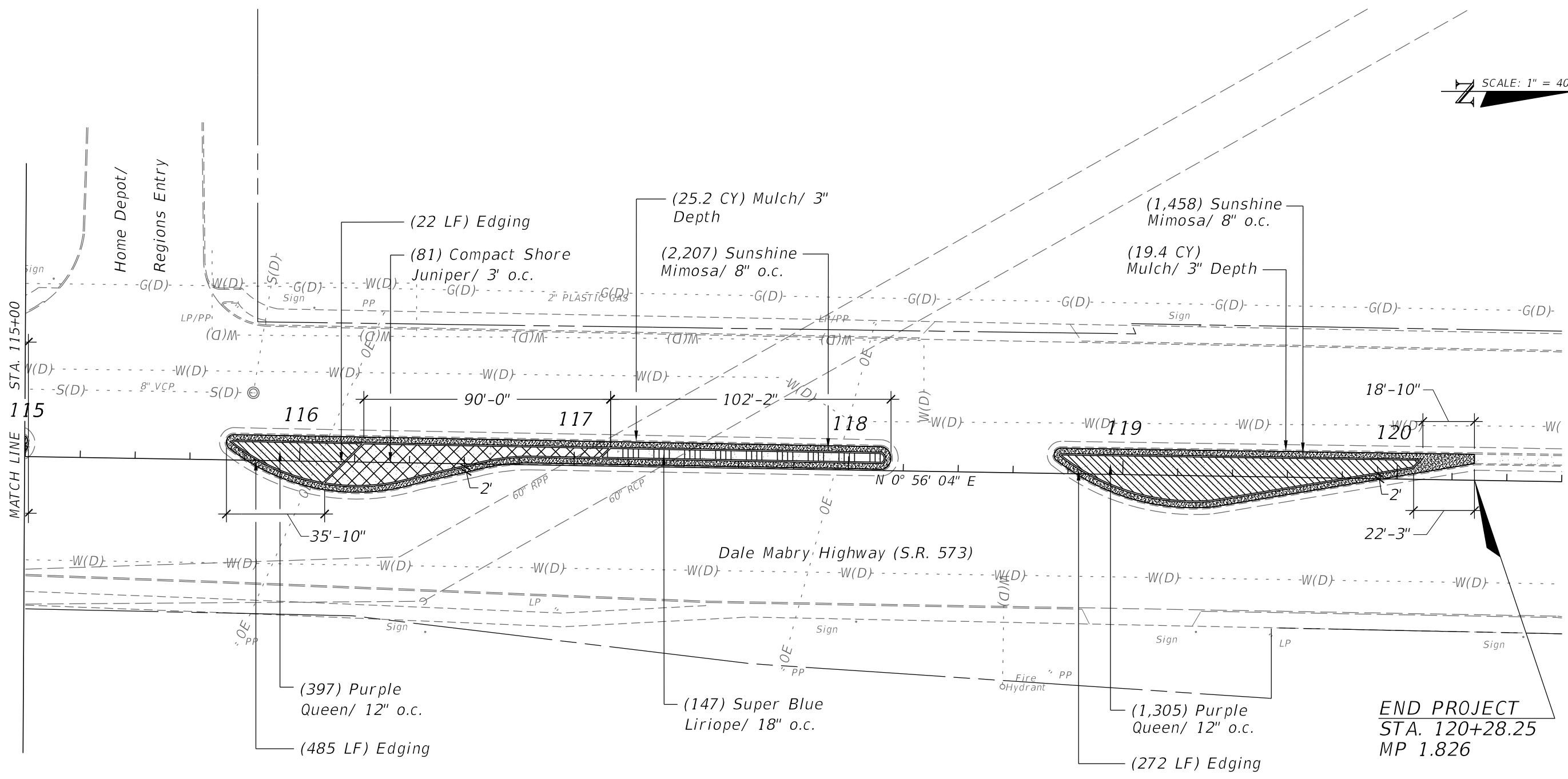
CITY OF TAMPA  
 Parks & Recreation Department  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
 Laurie Potier-Brown, R.L.A.  
 License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE PLAN (15)**

SHEET NO.  
L-20

SCALE: 1" = 40'



END PROJECT  
STA. 120+28.25  
MP 1.826

12/2/2015 11:17:41 AM P:\Projects\023COT\023-117002-43663425801\roadway\PLANRD16.dgn

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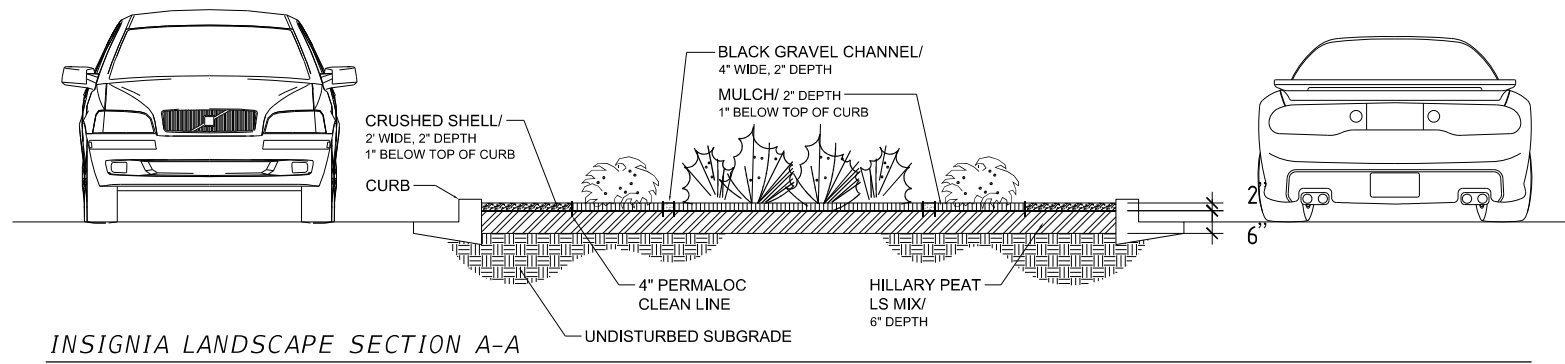
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CITY OF TAMPA  
Parks & Recreation Department  
3402 W. Columbus Drive  
Tampa, FL 33607  
Phone: 813-274-5137 FAX: 813-274-7429  
Laurie Potier-Brown, R.L.A.  
License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

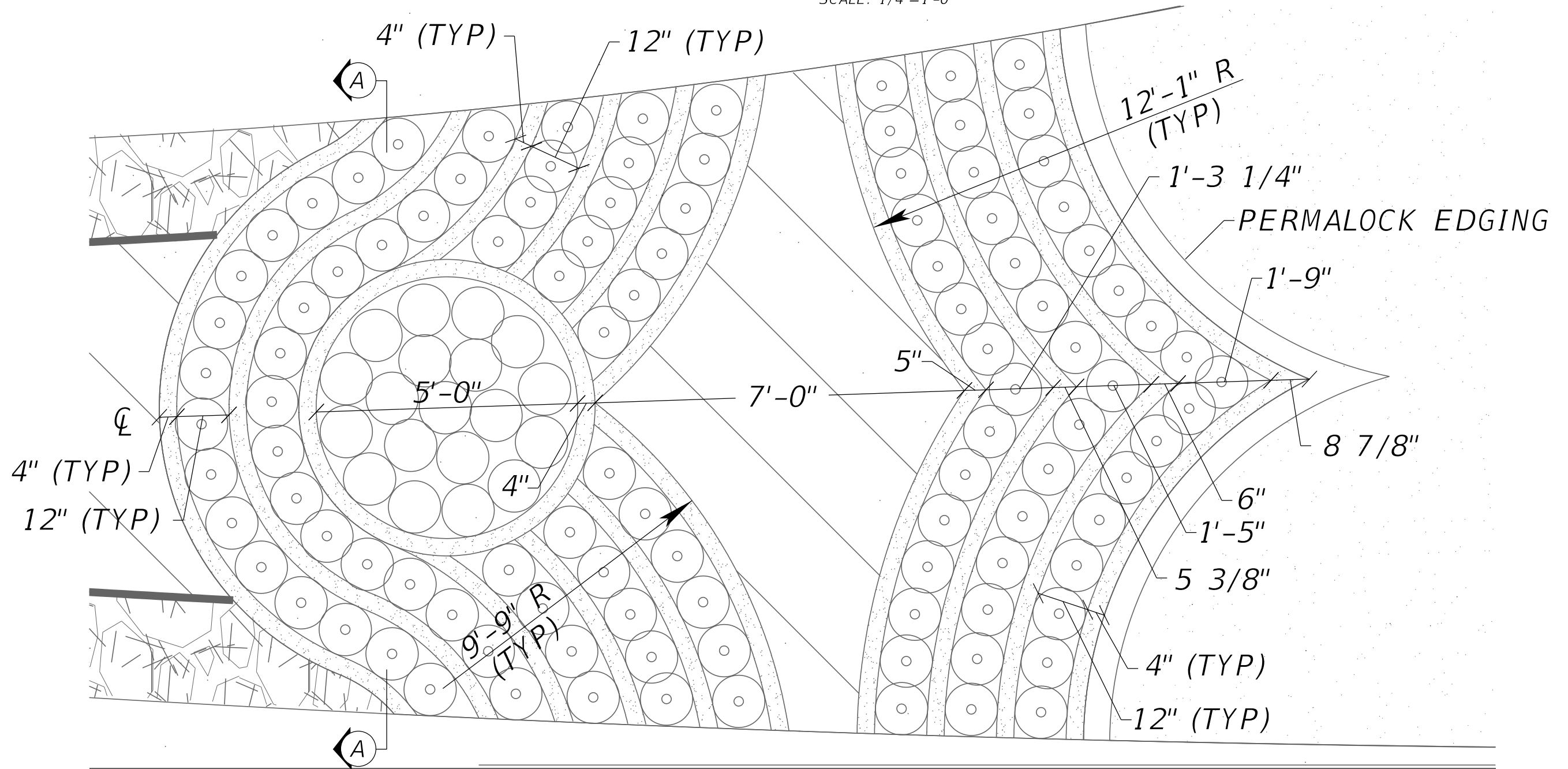
LANDSCAPE PLAN (16)

SHEET NO.  
L-21



INSIGNIA LANDSCAPE SECTION A-A

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



INSIGNIA LANDSCAPE ENLARGEMENT

SCALE: NTS

12/2/2015 11:17:43 AM P:\Projects\023COT\023-117002-43663425801\roadway\spdf\road05.dgn

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DATE	DESCRIPTION	DATE	DESCRIPTION

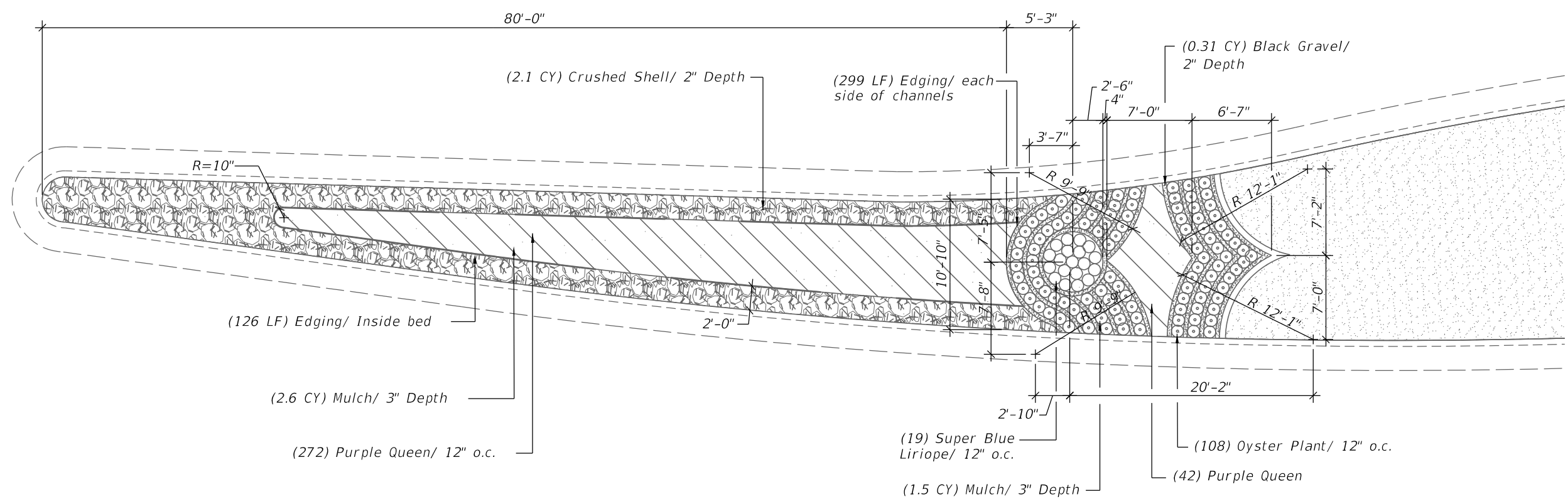
CITY OF TAMPA  
 Parks & Recreation Department  
 3402 W. Columbus Drive  
 Tampa, FL 33607  
 Phone: 813-274-5137 FAX: 813-274-7429  
 Laurie Potier-Brown, R.L.A.  
 License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**INSIGNIA DETAIL  
AND SECTION**

SHEET NO.  
L-22

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**CHIEF MASTER SERGEANT INSIGNIA**

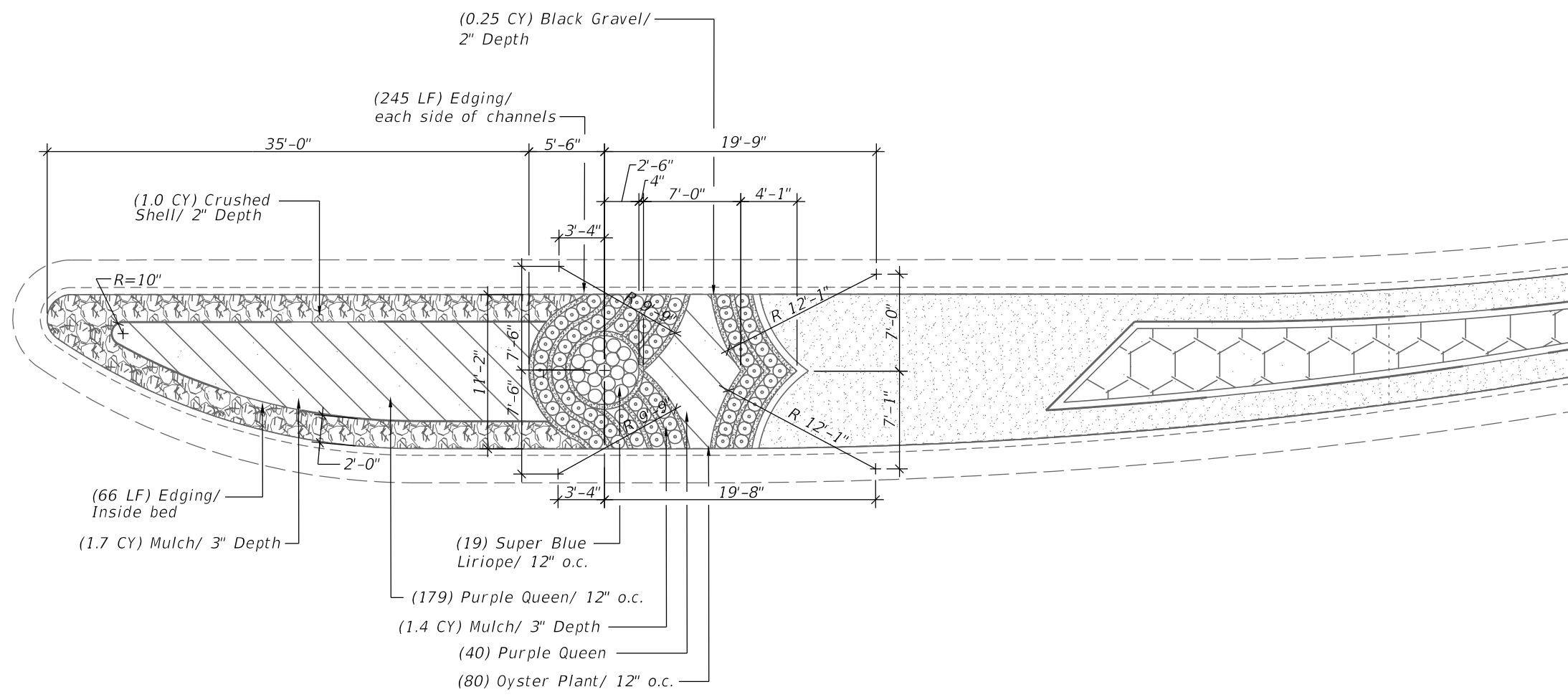
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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA <i>DETAIL (1)</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-23
					573	HILLSBOROUGH	436634-2-58-01		



SCALE: 1" = 10'



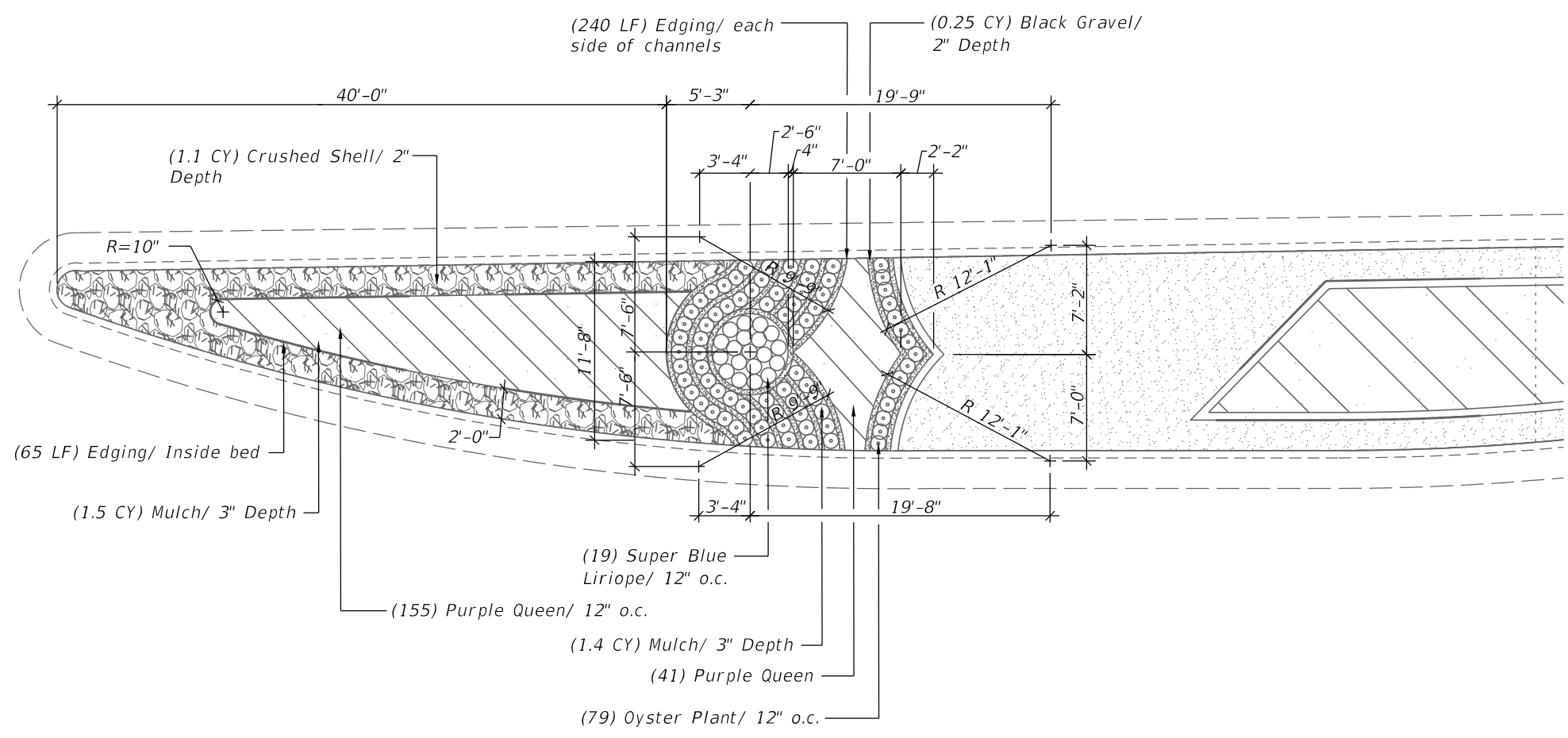
**SENIOR MASTER SERGEANT INSIGNIA**

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA DETAIL (2)	SHEET NO.  L-24
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 10'

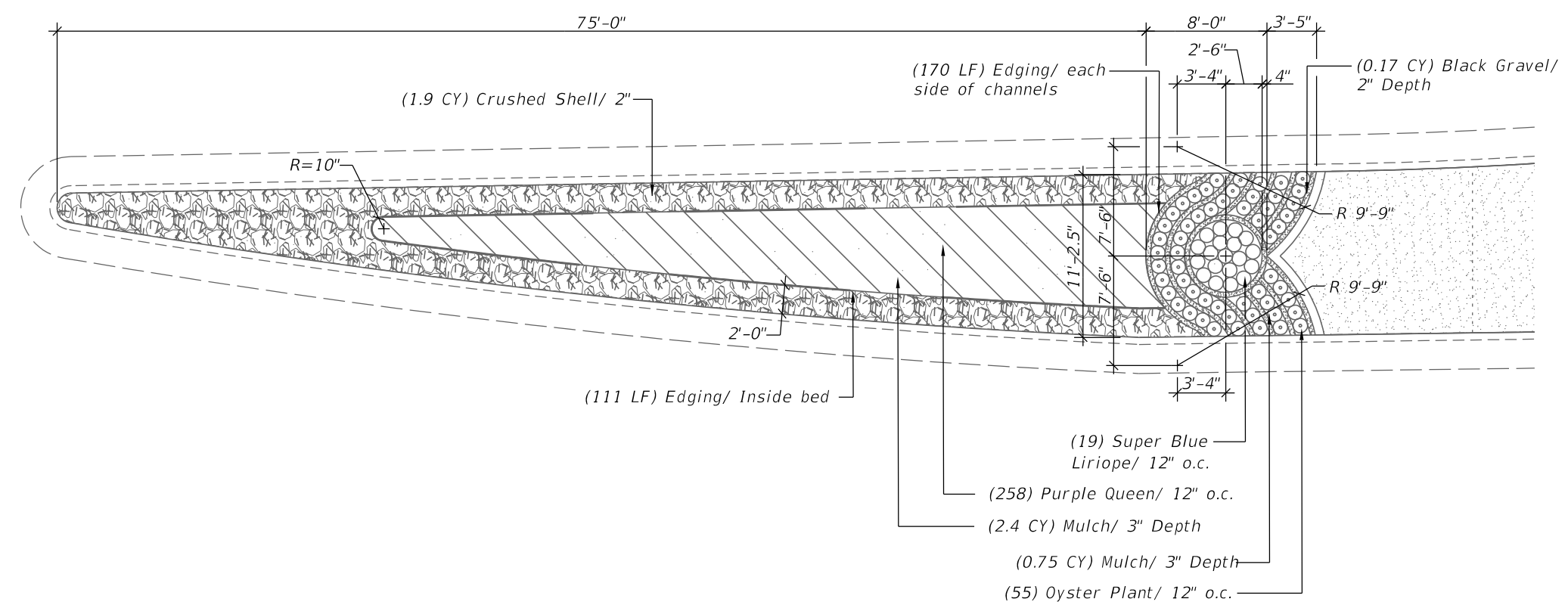


MASTER SERGEANT INSIGNIA

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA DETAIL (3)	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-25
					573	HILLSBOROUGH	436634-2-58-01		



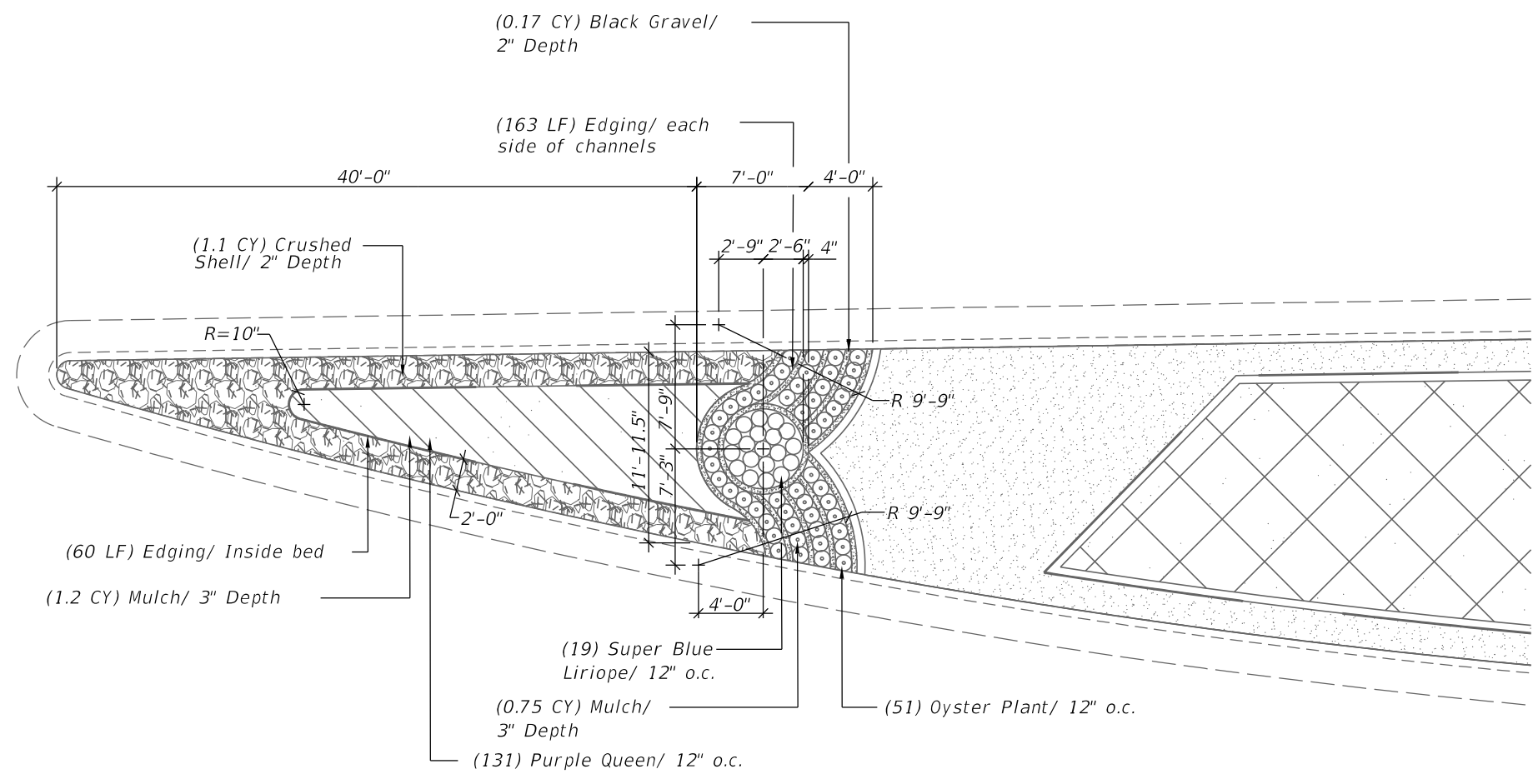
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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA <i>DETAIL (4)</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-26
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 10'



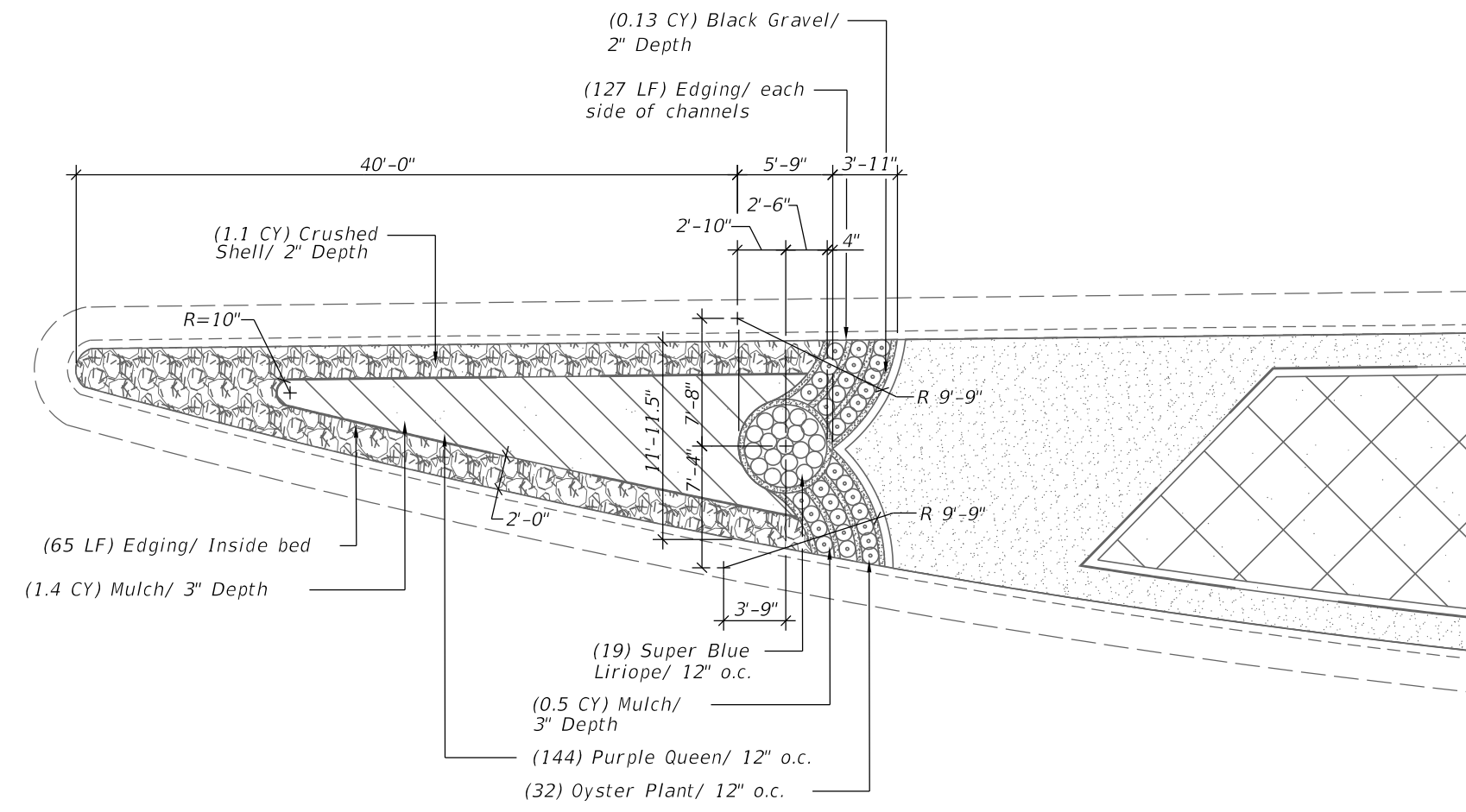
**STAFF SERGEANT INSIGNIA**

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REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>LANDSCAPE INSIGNIA</b>  <b>DETAIL (5)</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-27
						573	HILLSBOROUGH		436634-2-58-01

SCALE: 1" = 10'

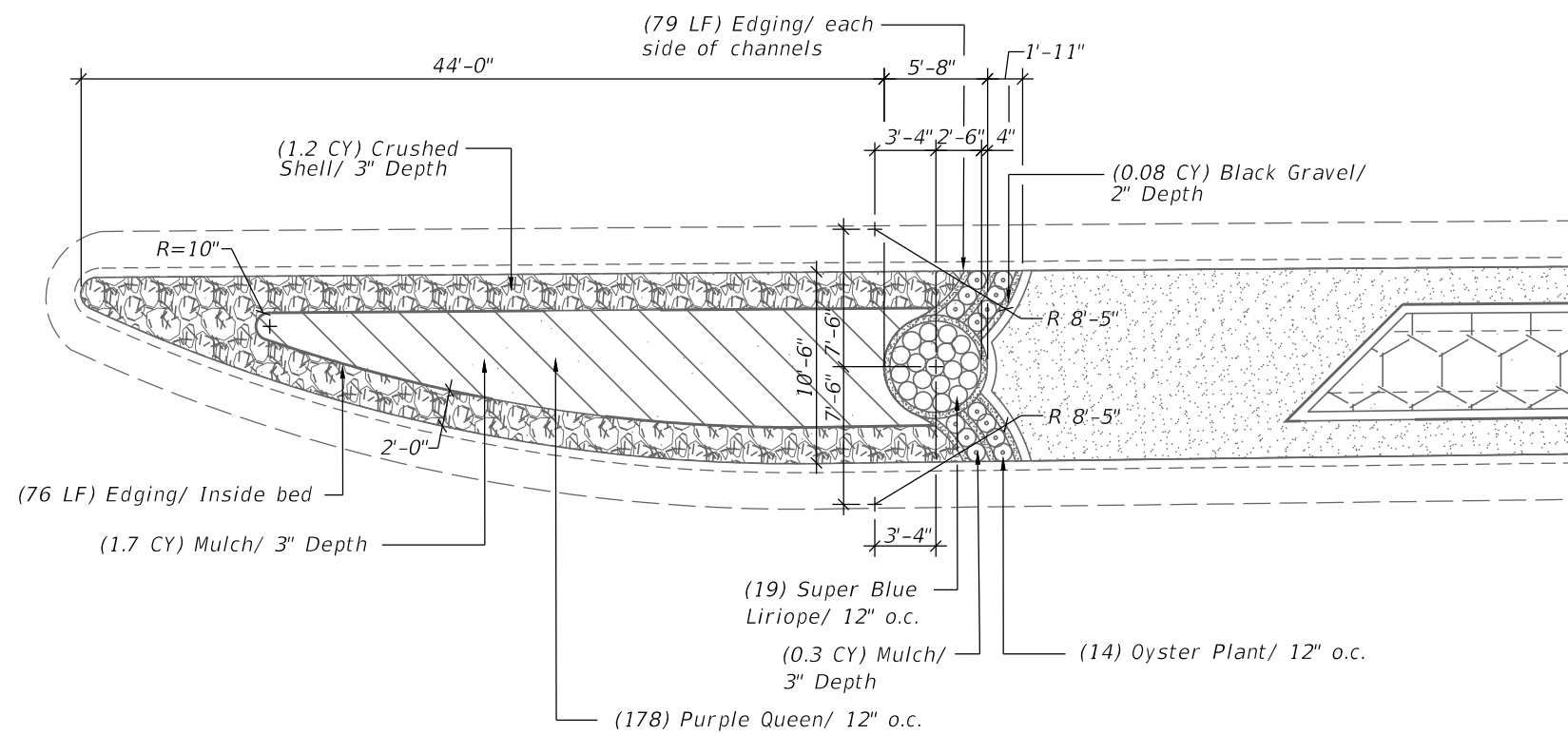


SENIOR AIRMAN INSIGNIA

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NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA DETAIL (6)	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-28
					573	HILLSBOROUGH	436634-2-58-01		



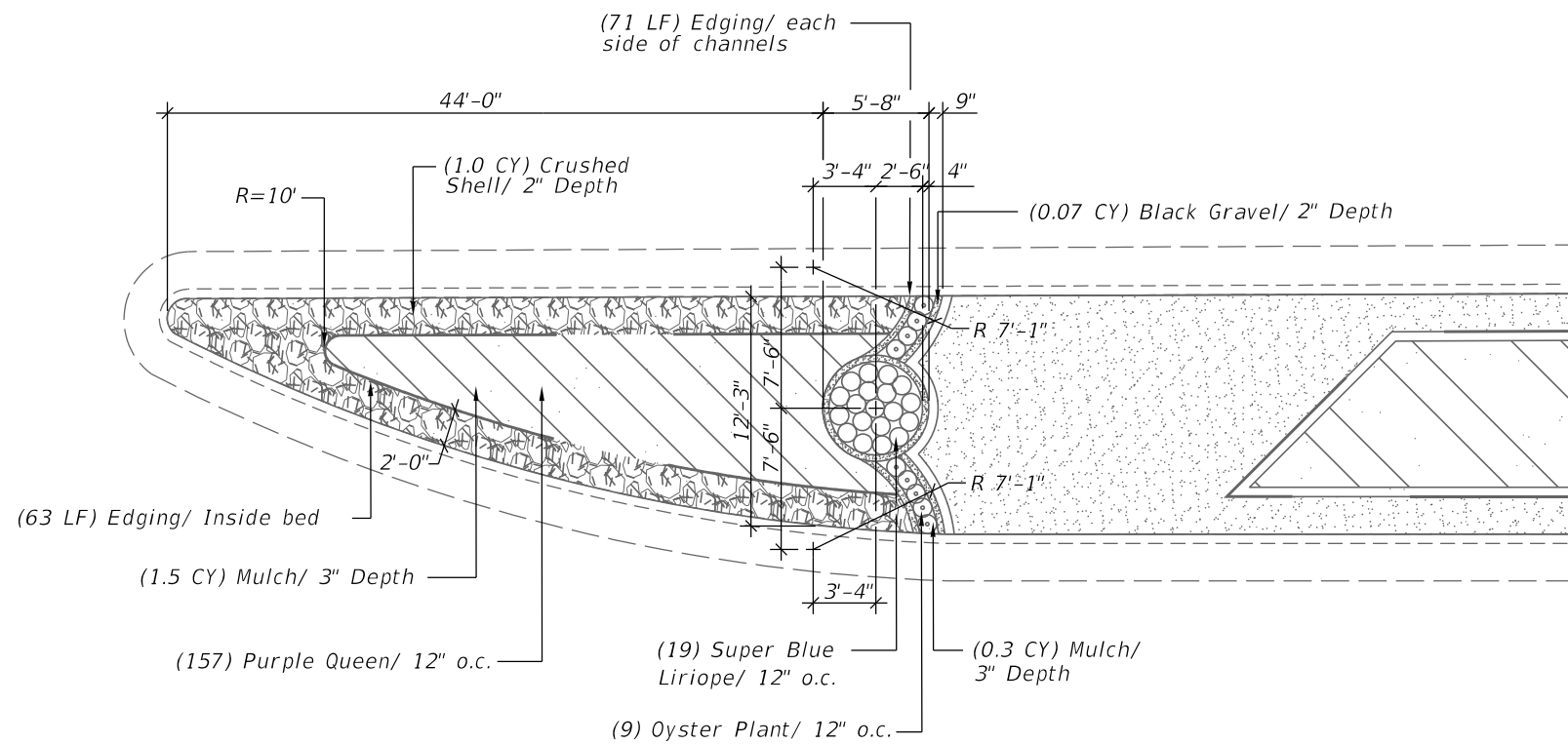
**AIRMAN FIRST CLASS INSIGNIA**

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NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS				CITY OF TAMPA Parks & Recreation Department 3402 W. Columbus Drive Tampa, FL 33607 Phone: 813-274-5137 FAX: 813-274-7429 Laurie Potier-Brown, R.L.A. License No. 0001676	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LANDSCAPE INSIGNIA DETAIL (7)	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-29
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 10'



**AIRMAN INSIGNIA**

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CITY OF TAMPA  
Parks & Recreation Department  
3402 W. Columbus Drive  
Tampa, FL 33607  
Phone: 813-274-5137 FAX: 813-274-7429  
Laurie Potier-Brown, R.L.A.  
License No. 0001676

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

**LANDSCAPE INSIGNIA  
DETAIL (8)**

SHEET NO.  
L-30

**TRAFFIC CONTROL GENERAL NOTES**

1. THE EXISTING POSTED SPEED SHALL BE MAINTAINED UNLESS OTHERWISE INDICATED IN THE PLANS. THE POSTED SPEED LIMIT IS 35 MPH FROM MACDILL AFB TO INTERBAY BOULEVARD AND 45 MPH FROM INTERBAY BOULEVARD TO GANDY BOULEVARD.
2. NO LANE CLOSURE WILL BE ALLOWED BETWEEN THE HOURS OF 7:00AM - 9:00AM AND 3:00PM - 7:30PM. ADDITIONALLY, THERE SHALL BE NO LANE CLOSURES WITHIN 1000 FEET OF MACDILL AFB GATE WITHOUT PRIOR APPROVAL FROM THE BASE. CONTACT JOEL W. GARTNER, COLONEL, USAF, COMM: 813-828-4545, DSN 968-4545, CELL 813-833-4301.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE CITY OF TAMPA CHIEF TRAFFIC MANAGEMENT ENGINEER VIC BHIDE (813-363-4651) A MINIMUM OF 7 DAYS IN ADVANCE OF ANY LANE CLOSURES. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF TAMPA- TRAFFIC OPERATIONS MANAGER AT LEAST SEVEN DAYS IN ADVANCE OF ANY LANE CLOSURES.
4. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A WRITTEN PLAN THAT DETAILS EACH ACTIVITY INVOLVED IN THE LANE CLOSURE. THE PLAN SHALL INCLUDE BACK-UP PLANS FOR ACTIVITIES OF ALL SUBCONTRACTOR'S OPERATIONS AS WELL AS THE PRIME CONTRACTOR'S. NO LANE CLOSURES WILL BE ALLOWED WITHOUT A PLAN TO ACHIEVE RE-OPENING. AN EXAMPLE OF AN ACCEPTABLE BACK-UP PLAN WOULD INCLUDE THE CONTRACTOR CHOOSING TO HAVE TEMPORARY TAPE ON HAND.
5. ALL TRAFFIC CONTROL SHALL ADHERE TO STANDARD INDEX NOS. 600, 611, 612, 613, 614, 615, 616, 617, 618, AND 625 (WITH APPROVAL). THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION AND SHALL ENSURE THAT PEDESTRIANS HAVE A SAFE AND UNOBSTRUCTED ROUTE. ALL PEDESTRIAN CONTROL SHALL ADHERE TO INDEX 660.
6. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON SIDE STREETS AND DRIVEWAYS.
7. DURING LANE CLOSURES, THE CONTRACTOR SHALL PROVIDE A DEDICATED CREW FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF THE TRAFFIC CONTROL DEVICES (I.E. BARRICADES, SIGNS, ARROW BOARDS, ETC.). THIS CREW SHALL CONSIST OF AT LEAST THREE MEMBERS OF THE CONTRACTOR'S WORK FORCE WHOSE SOLE RESPONSIBILITY WILL BE THE MAINTENANCE OF TRAFFIC CONTROL. THE CONTRACTOR SHALL FURNISH A WORK VEHICLE TO AID IN MAINTAINING THE TRAFFIC CONTROL DEVICES.
8. FLAGGERS SHALL BE USED TO CONTROL TRAFFIC WHEN CONSTRUCTION ACTIVITY OCCURS AT DRIVEWAYS AND SIDE STREETS. THE 600 SERIES OF THE STANDARD INDEX SHALL BE UTILIZED.
9. PLACE PORTABLE CHANGEABLE (VARIABLE) MESSAGE SIGNS (PCMS) 500 FEET IN ADVANCE OF THE WORK ZONE (FOR NORTHBOUND AND SOUTHBOUND TRAFFIC) FOR A PERIOD OF SEVEN DAYS PRIOR TO THE FIRST DAY OF ROADWAY CONSTRUCTION.
10. MESSAGES SHOULD READ:
11. MESSAGE 1: ROAD WORK
12. MESSAGE 2: BEGINS "BEGIN DATE"
13. AFTER THE INITIAL SEVEN DAYS, THE PCMS SHALL READ (DURING LIGHTED HOURS):
14. MESSAGE 1: LIGHTED WORK ZONE
15. ONE DAY PRIOR TO LANE CLOSURES, (UNLESS OTHERWISE DIRECTED BY THE ENGINEER) THE PCMS SHOULD READ:
16. MESSAGE 1: LANE CLOSED "DATE"
17. MESSAGE 2: "CLOSING TIME" TO "CLOSING TIME"
18. MAINTENANCE OF TRAFFIC SIGN LOCATIONS SHOWN IN INDEXES MAY BE VARIED AS DEEMED NECESSARY BY THE ENGINEER TO AVOID STREETS, DRIVEWAYS, OR OTHER CONFLICTS. MINIMUM SIGNING DISTANCES WILL BE MAINTAINED DURING CONSTRUCTION. EXISTING SIGNING THAT CONFLICTS WITH TCP SIGNING SHALL BE REMOVED OR COVERED DURING CONSTRUCTION. IF REMOVED, THE EXISTING SIGNING WILL BE REPLACED WHEN THE TCP SIGNING IS REMOVED.
19. MAINTENANCE OF TRAFFIC SHALL INCLUDE RESETTING ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION. ALL SIGNS SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET, AND METHOD OF INSTALLATION.
20. DROP-OFF CONDITIONS MUST BE ELIMINATED AND AN ACCEPTABLE GRADE RESTORED AS OUTLINED IN THE FDOT DESIGN STANDARDS, INDEX 600 SERIES, BY THE END OF EACH WORK PERIOD.
21. THE CONTRACTOR SHALL NOT USE LOW PROFILE REFLECTIVE MARKERS.
22. THE CONTRACTOR SHALL, AT THE DISCRETION OF THE ENGINEER, OPEN ANY TEMPORARY LANE CLOSURE CAUSING EXTENDED TRAFFIC CONGESTION (5 MINUTE DELAY) UNTIL TRAFFIC HAS RETURNED TO AN ACCEPTABLE FLOW AS DETERMINED BY THE ENGINEER.
23. THE CONTRACTOR SHALL MAINTAIN STREET NAME SIGNS VISIBLE DURING CONSTRUCTION OPERATIONS IN ORDER TO FACILITATE EMERGENCY VEHICLE TRAFFIC.
24. THE CONTRACTOR SHALL NOT CLOSE ANY TWO CONSECUTIVE SIDE STREETS OR MEDIAN OPENINGS IN ANY GIVEN PHASE.
25. ALL LANES ON DALE MABRY HIGHWAY MUST BE OPEN TO TRAFFIC DURING AN EVACUATION NOTICE OF A HURRICANE OR OTHER CATASTROPHIC EVENT, AND SHALL REMAIN OPEN FOR THE DURATION OF THE EVACUATION OR EVENT AS DIRECTED BY THE ENGINEER.
26. THE CONTRACTOR SHALL PLACE THE PROJECT INFORMATION SIGN 500 FEET IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN ON EACH MAINLINE APPROACH FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL OBTAIN THE CONTACT INFORMATION PHONE NUMBER FROM THE RESIDENT CONSTRUCTION OFFICE PRIOR TO OR AT THE PROJECT PRECONSTRUCTION CONFERENCE MEETING.

MESSAGES SHOULD READ:



AFTER THE INITIAL SEVEN DAYS, THE PCMS SHALL READ (DURING LIGHTED HOURS):



ONE DAY PRIOR TO LANE CLOSURES, (UNLESS OTHERWISE DIRECTED BY THE ENGINEER) THE PCMS SHOULD READ:



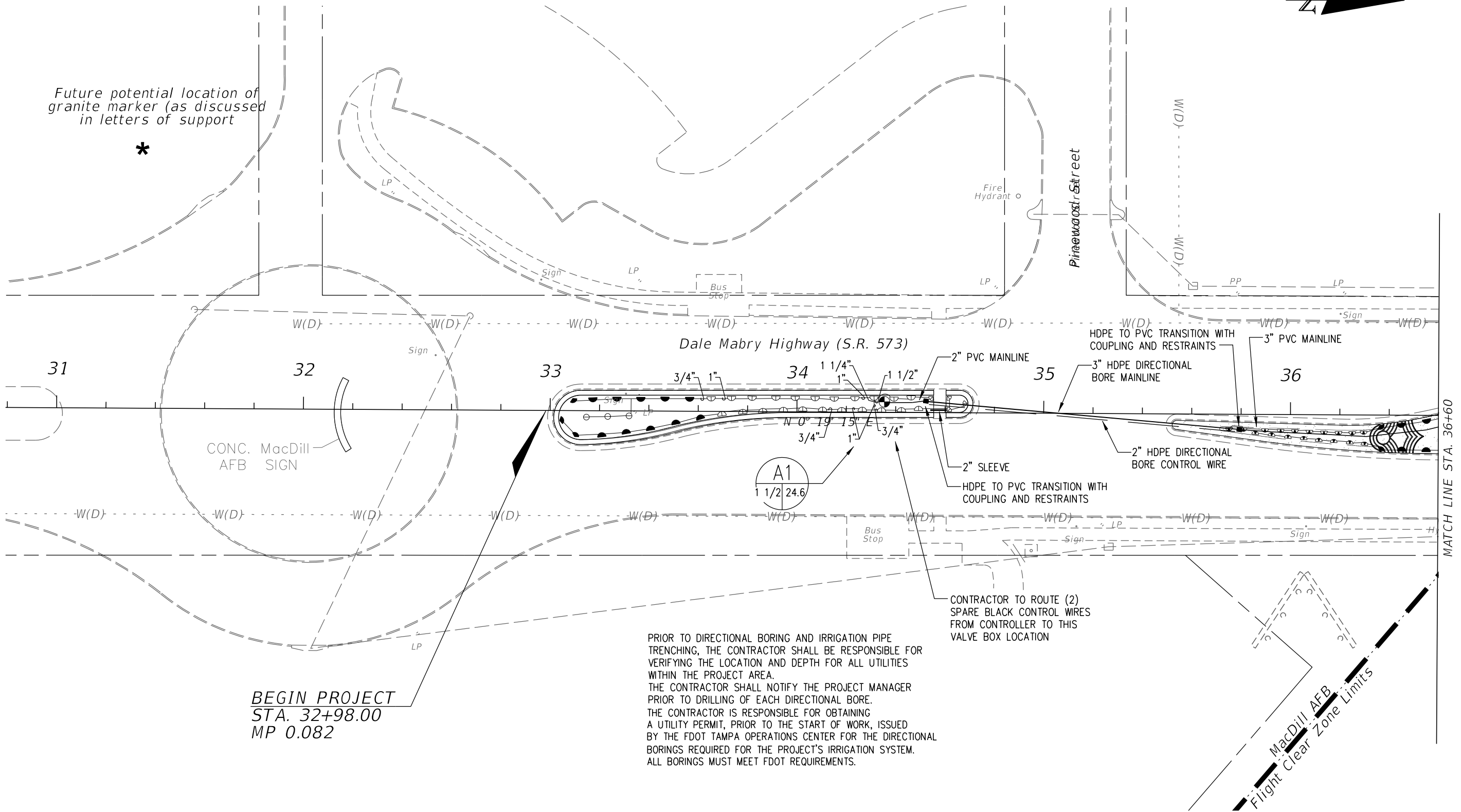
SFILES  
STIMES  
SDATES

REVISIONS				BAYSIDE ENGINEERING 1104 E TWIGGS STREET Tampa, FL 33602 Phone: 813-314-0314 FAX: 813-314-0345 JORDAN L CAVIGGIA, PE License No. 68253	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>TEMPORARY TRAFFIC CONTROL DETAILS</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-31
					573	HILLSBOROUGH	436634-2-58-01		

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SCALE: 1" = 40'



BEGIN PROJECT  
STA. 32+98.00  
MP 0.082

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE.  
THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM.  
ALL BORINGS MUST MEET FDOT REQUIREMENTS.

12/7/2015 8:22:12 AM P:\Projects\023COT\023-117002-43663425801\amdiscp\PLAN\LD01.dgn

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

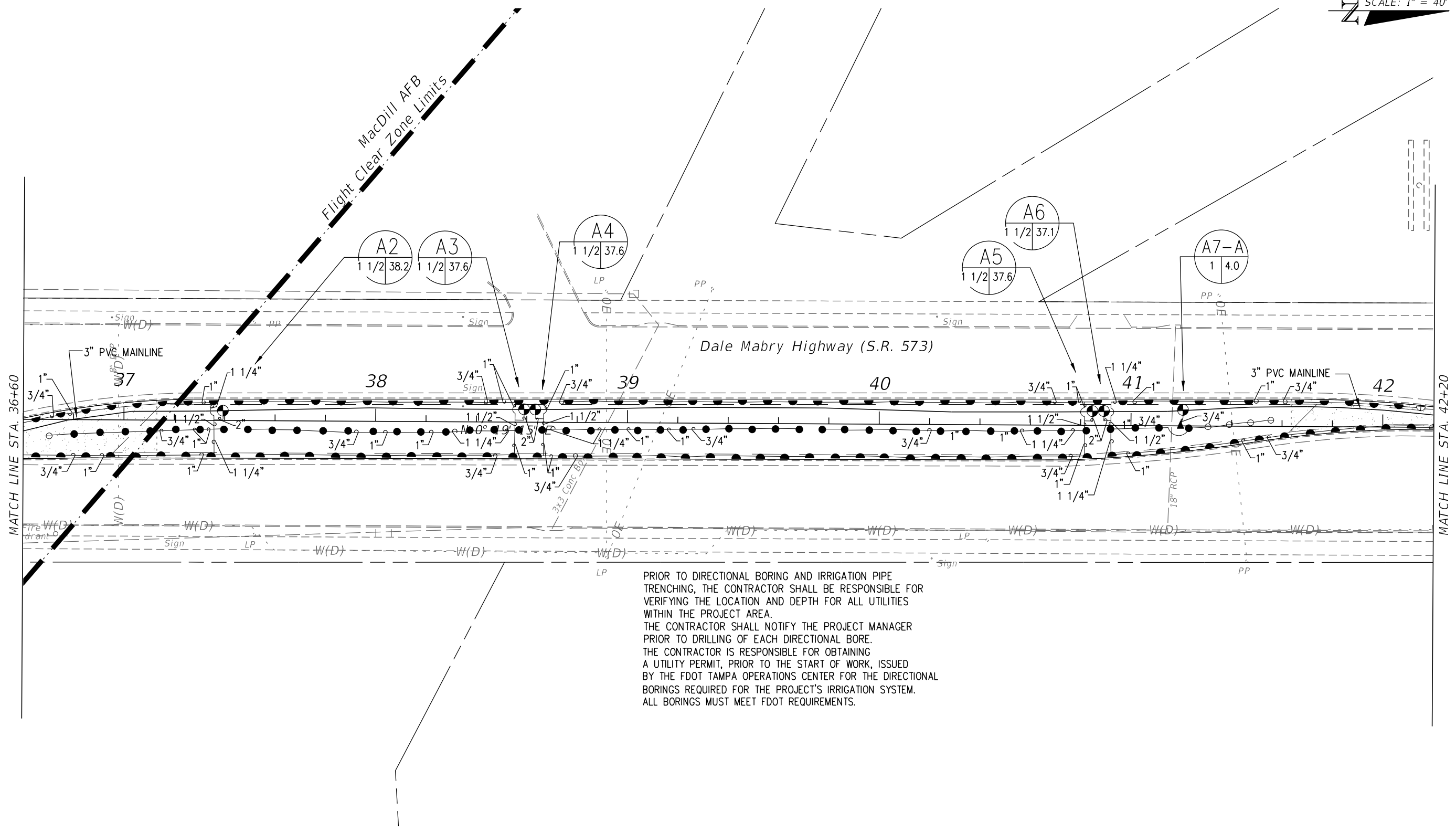
COLBORN DESIGN GROUP, INC.  
241 Stewarton Road  
Mill Run, PA 15464  
Office: 941-795-7458 Cell: 941-812-2768  
Skip Colborn, R.L.A., LEED-AP, CID  
License No. LA0001484

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

IRRIGATION PLAN (1)

SHEET NO.  
L-32

SCALE: 1" = 40'



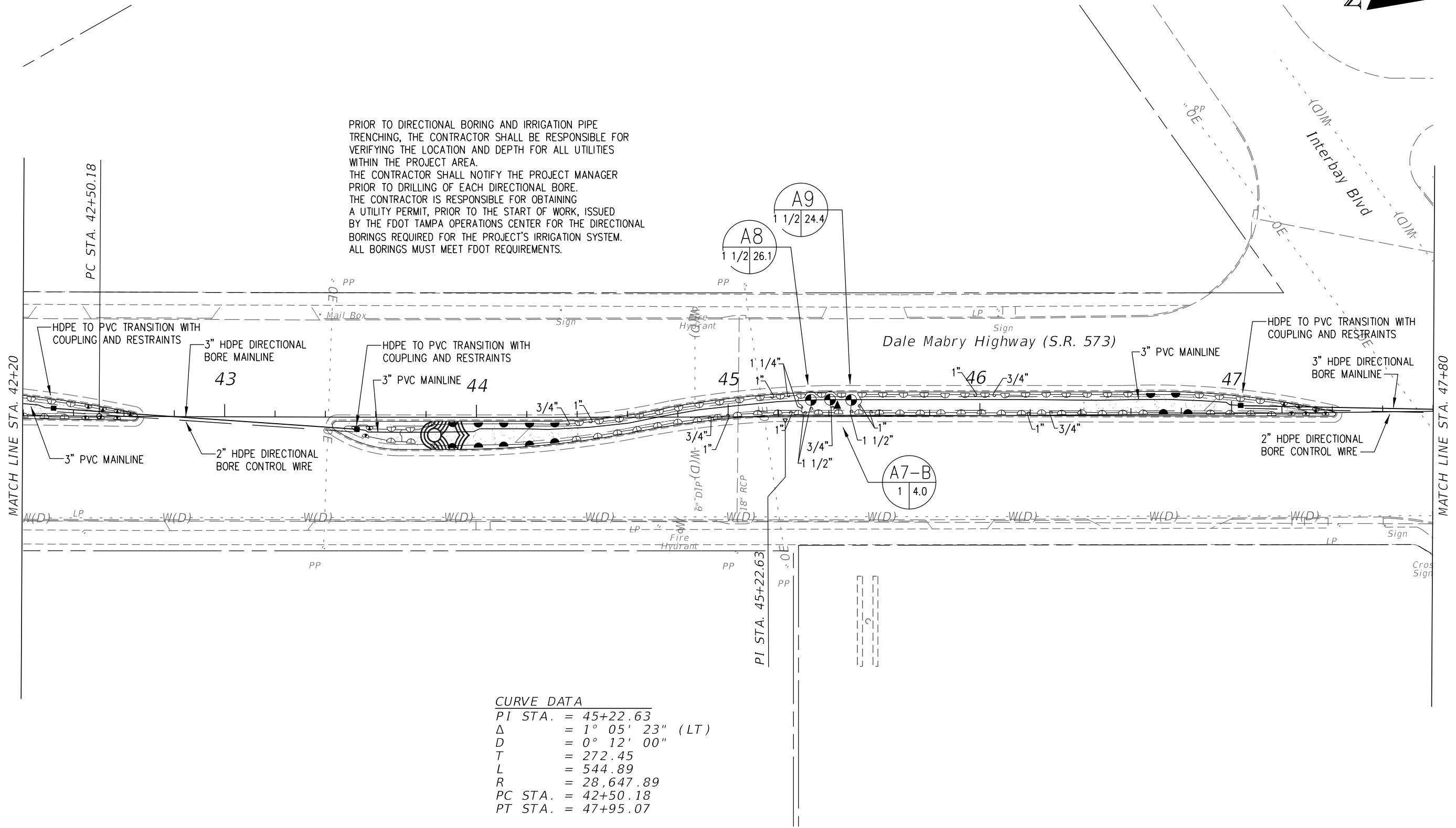
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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>IRRIGATION PLAN (2)</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		L-33
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
 THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE.  
 THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM.  
 ALL BORINGS MUST MEET FDOT REQUIREMENTS.



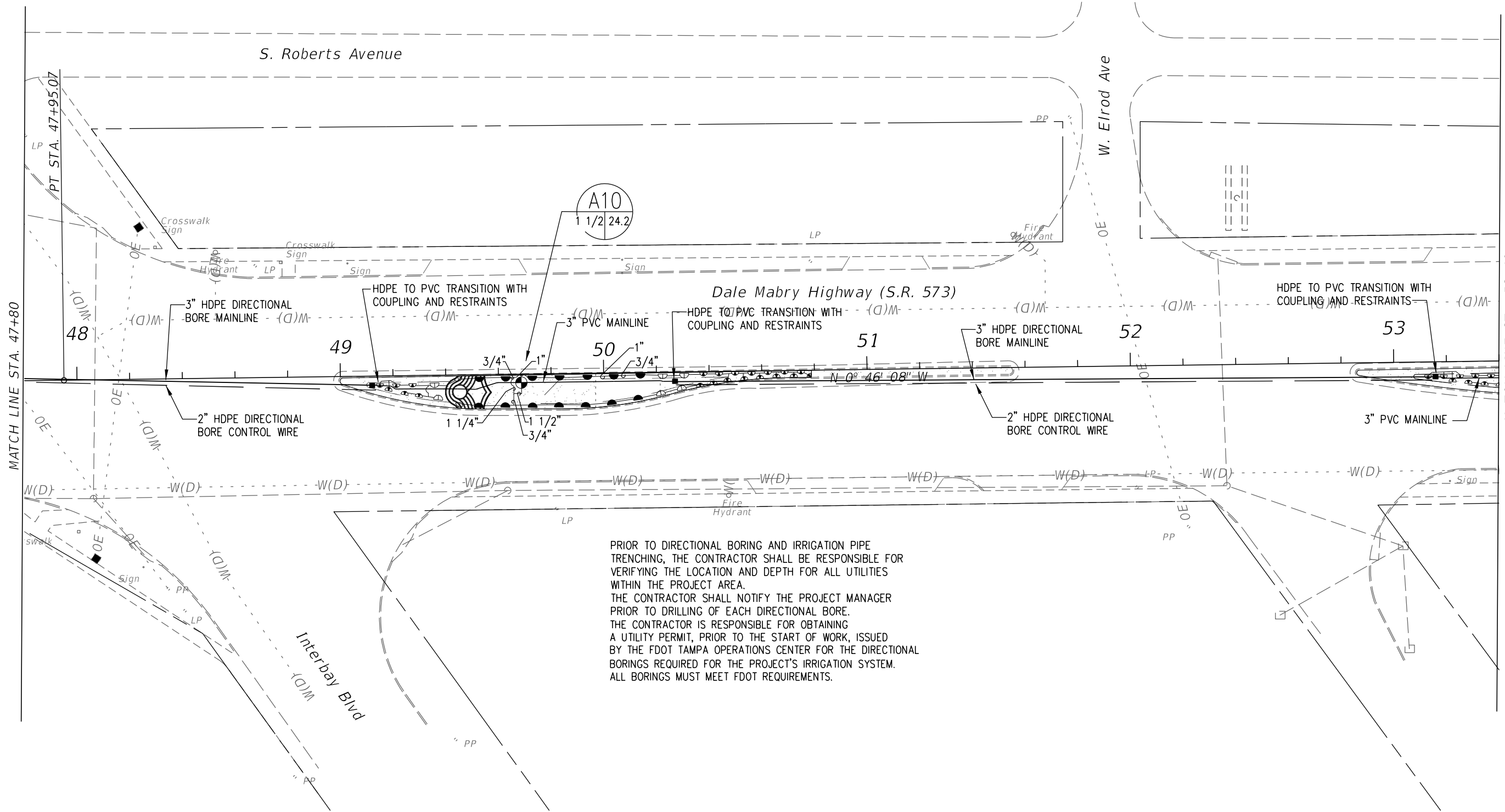
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R	= 28,647.89
PC STA.	= 42+50.18
PT STA.	= 47+95.07

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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION PLAN (3)	SHEET NO.  L-34
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		



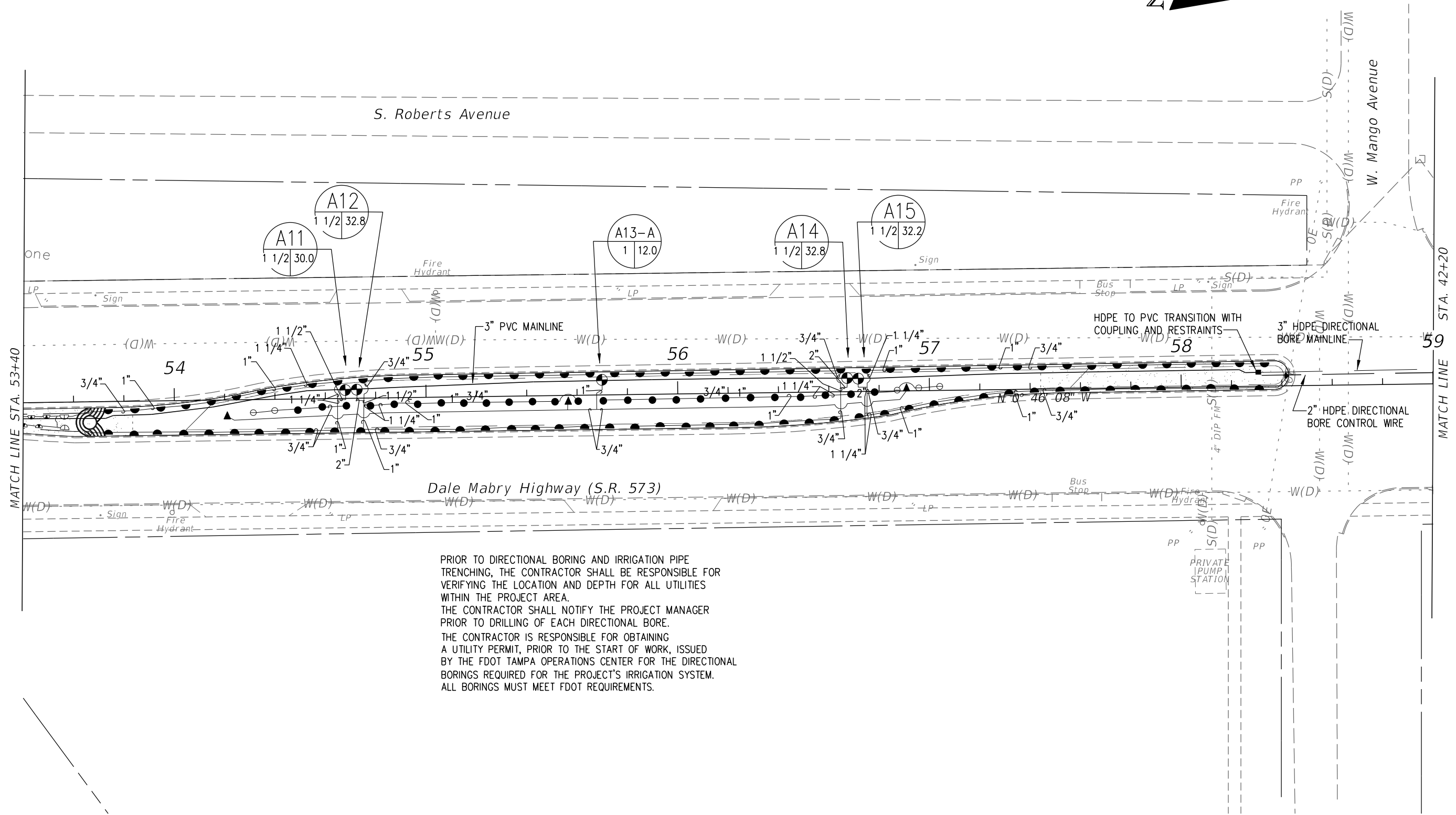
PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.

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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION PLAN (4)	SHEET NO.  L-35
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'



PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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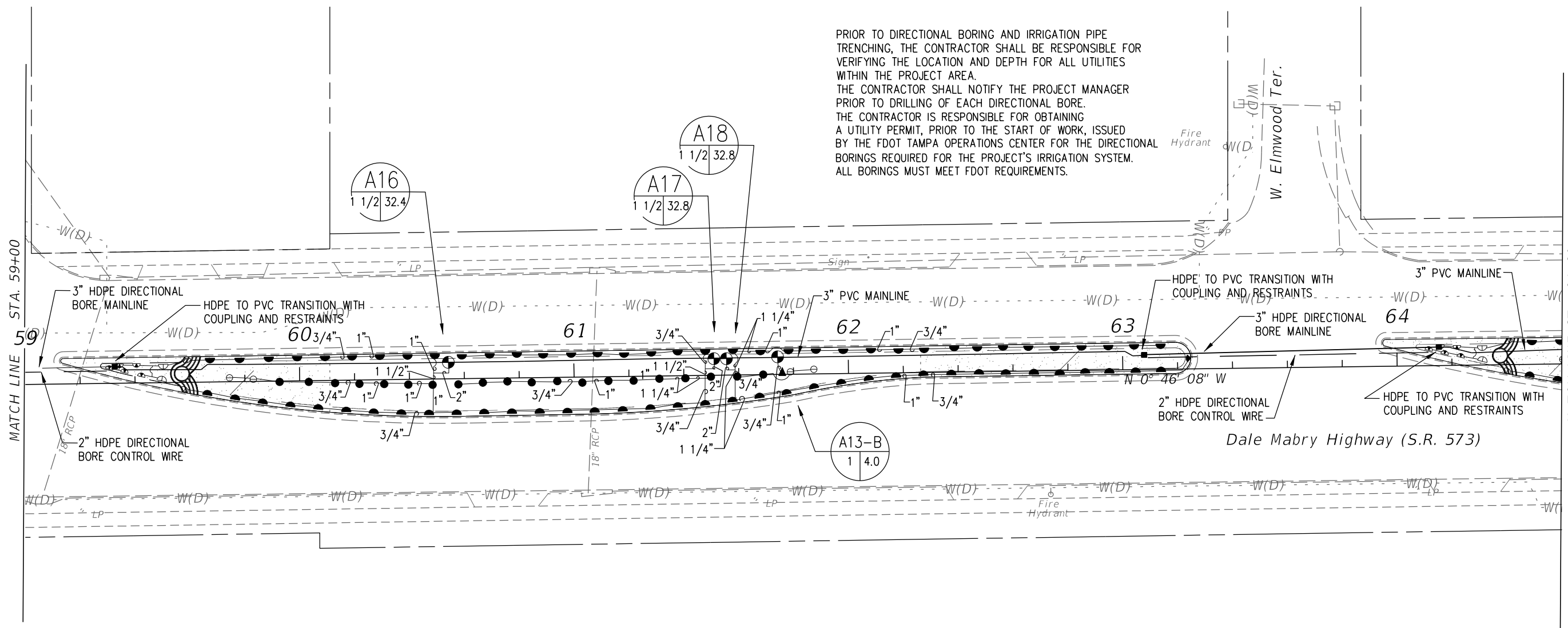
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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION PLAN (5)	SHEET NO.  L-36
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				573	HILLSBOROUGH	436634-2-58-01			

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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 THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM.  
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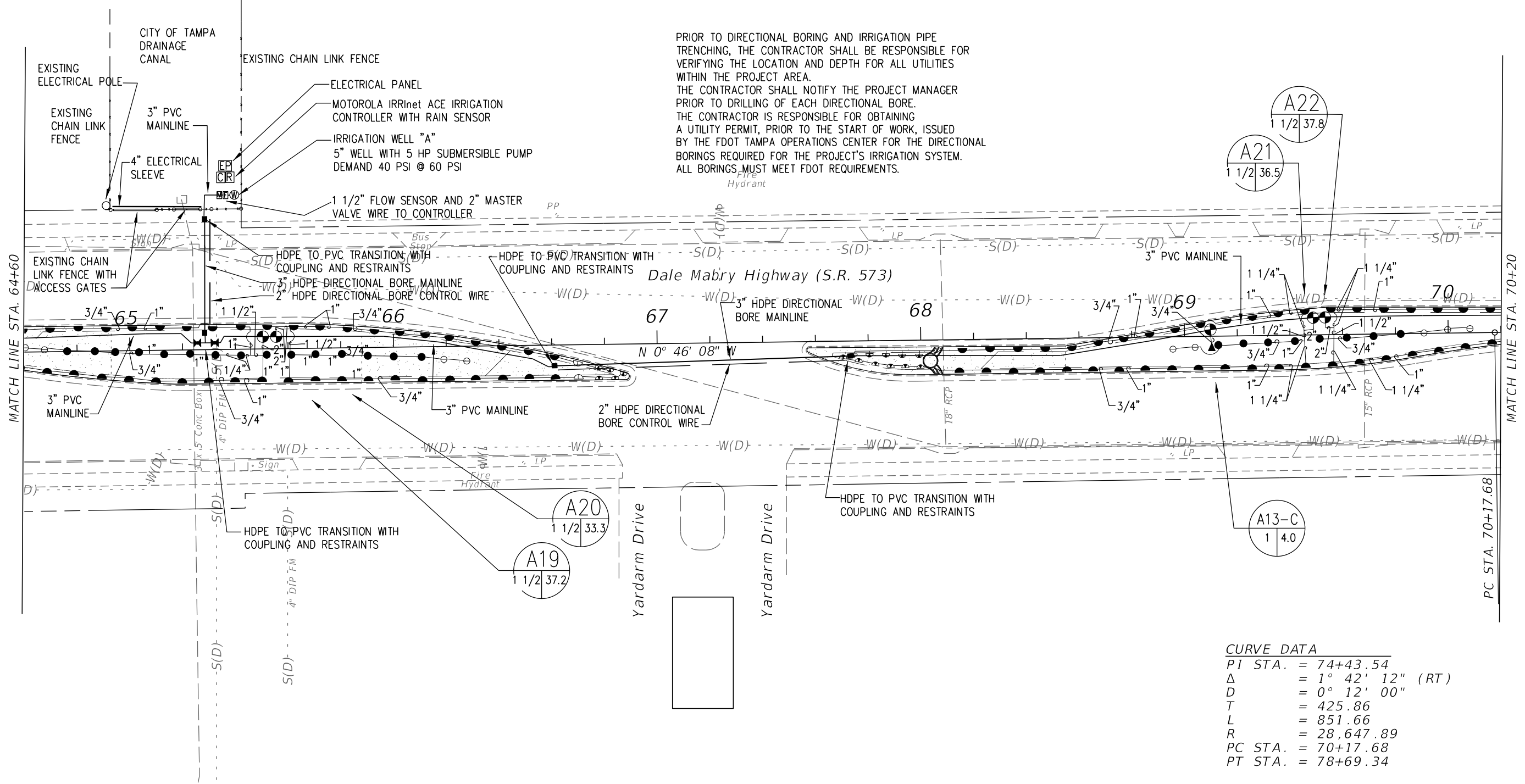
12/7/2015 8:22:22 AM P:\Projects\023COT\023-177002-43663425801\amdiscp\PI\AWILD06.dgn

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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION PLAN (6)	SHEET NO.  L-37
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.



**CURVE DATA**

PI STA.	= 74+43.54
Δ	= 1° 42' 12" (RT)
D	= 0° 12' 00"
T	= 425.86
L	= 851.66
R	= 28,647.89
PC STA.	= 70+17.68
PT STA.	= 78+69.34

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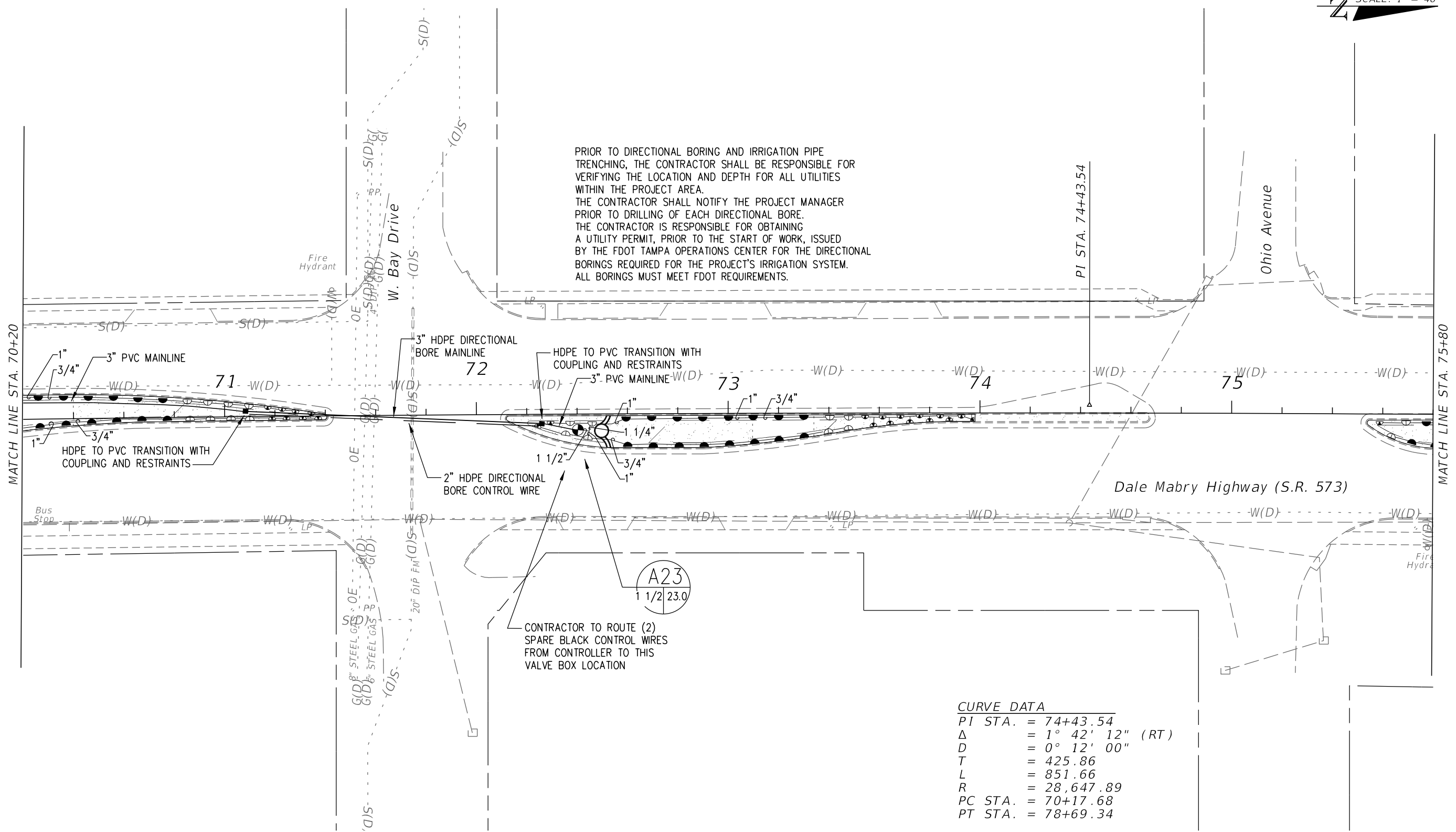
NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  L-38
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					573	HILLSBOROUGH	436634-2-58-01	

**IRRIGATION PLAN (7)**

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.



**CURVE DATA**

PI STA.	= 74+43.54
Δ	= 1° 42' 12" (RT)
D	= 0° 12' 00"
T	= 425.86
L	= 851.66
R	= 28,647.89
PC STA.	= 70+17.68
PT STA.	= 78+69.34

CONTRACTOR TO ROUTE (2) SPARE BLACK CONTROL WIRES FROM CONTROLLER TO THIS VALVE BOX LOCATION

A23  
1 1/2 23.0

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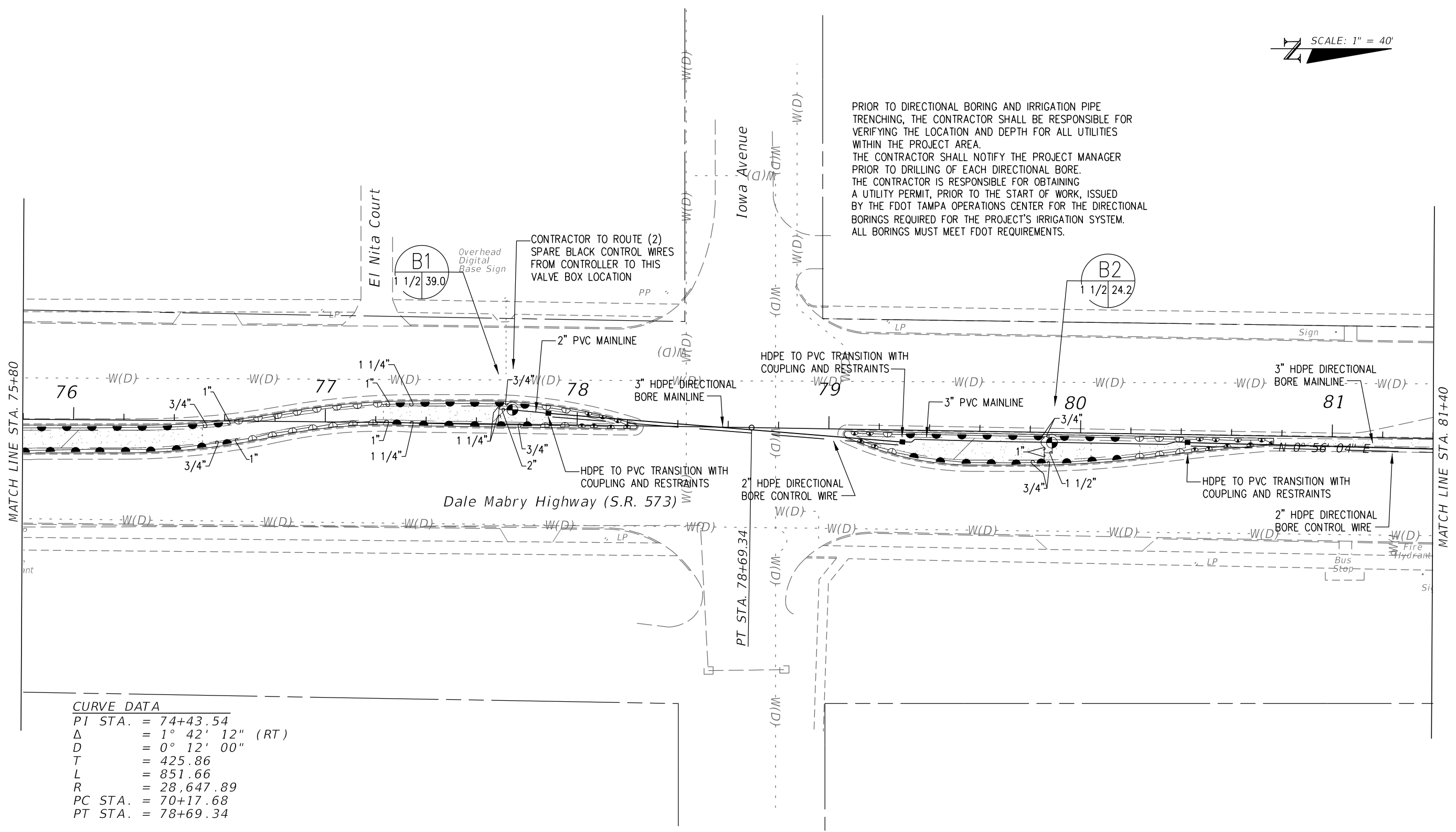
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REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION PLAN (8)	SHEET NO.  L-39
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		





PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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 THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM.  
 ALL BORINGS MUST MEET FDOT REQUIREMENTS.



**CURVE DATA**

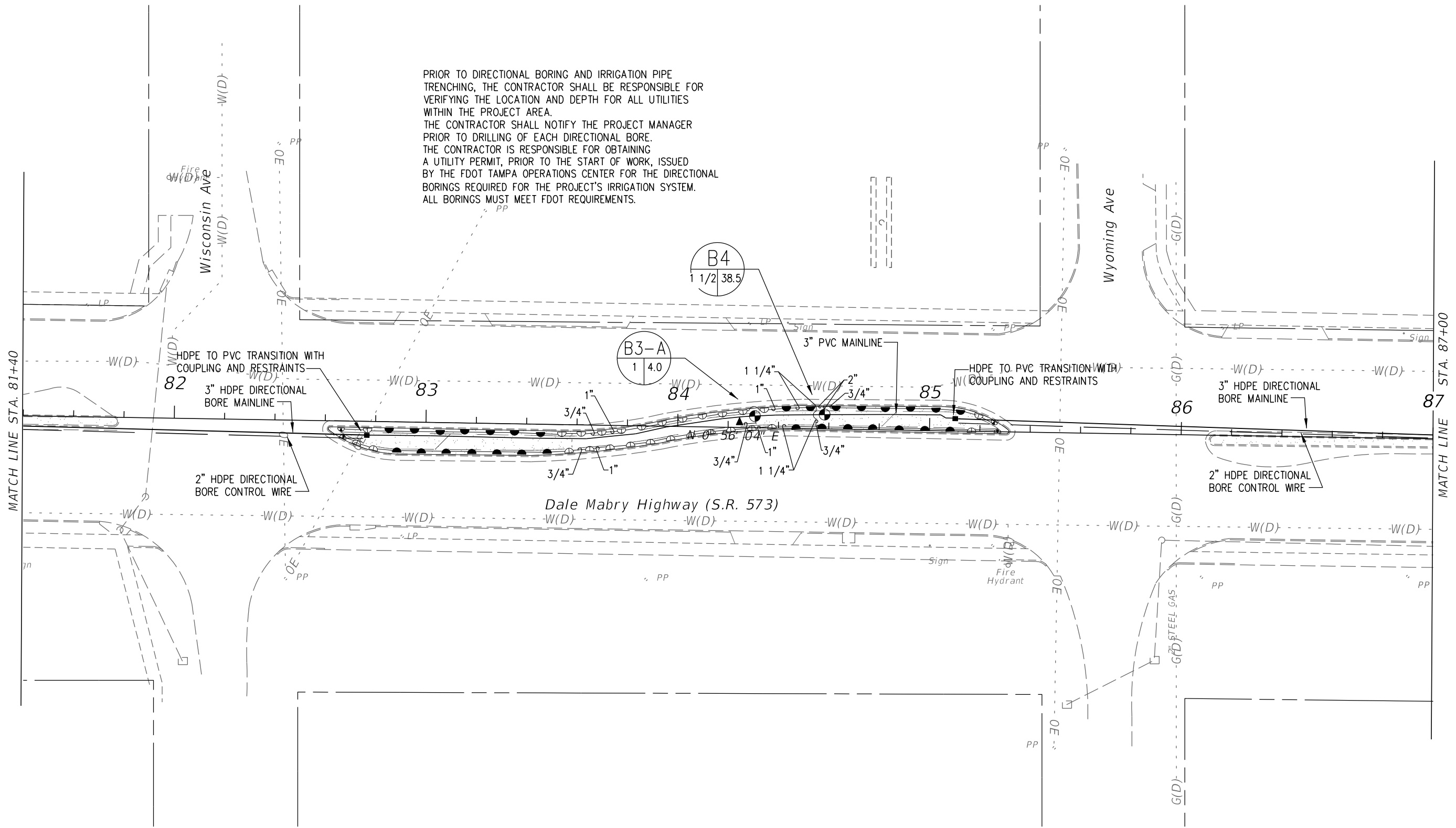
PI STA.	= 74+43.54
Δ	= 1° 42' 12" (RT)
D	= 0° 12' 00"
T	= 425.86
L	= 851.66
R	= 28,647.89
PC STA.	= 70+17.68
PT STA.	= 78+69.34

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-40

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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 ALL BORINGS MUST MEET FDOT REQUIREMENTS.



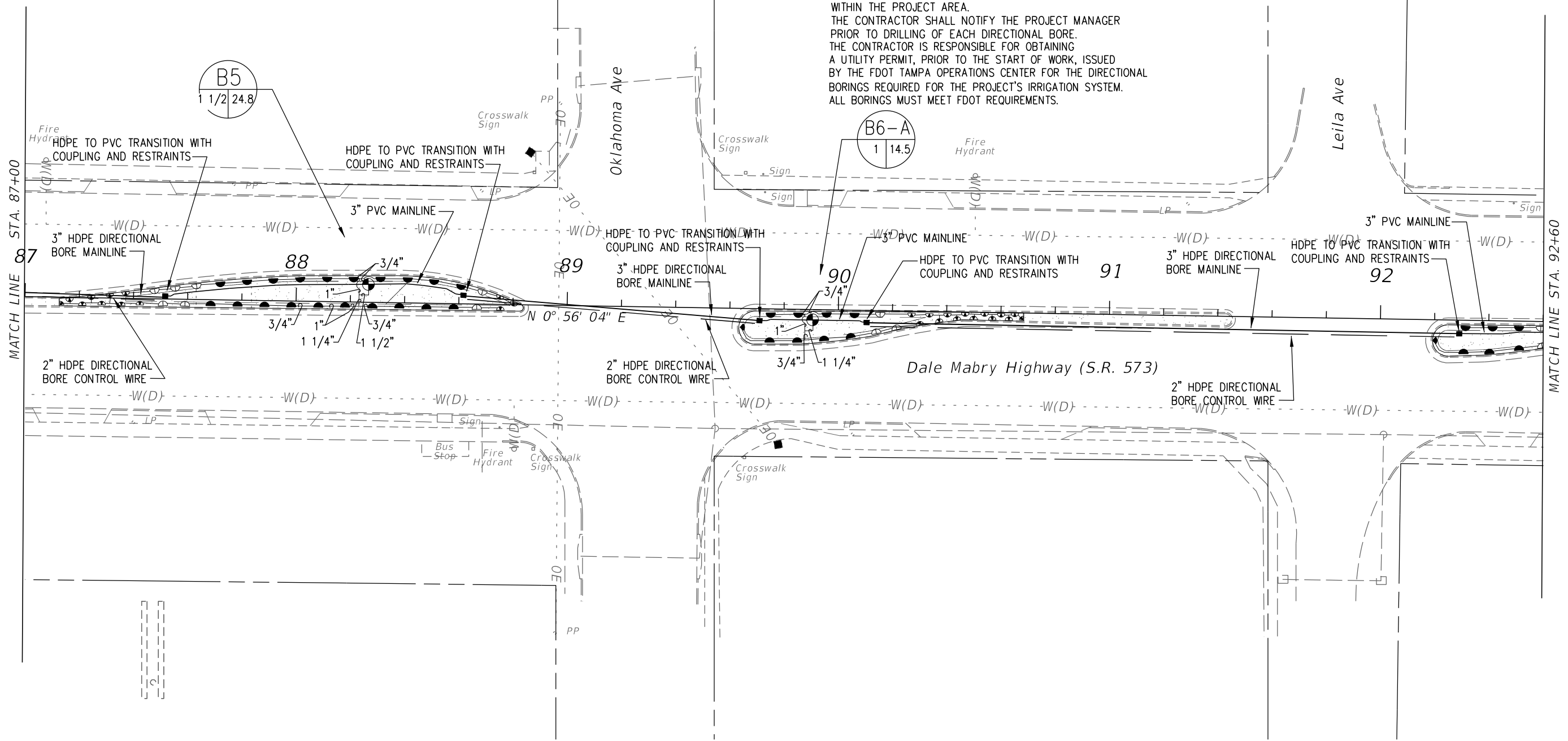
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.



B5  
1 1/2 24.8

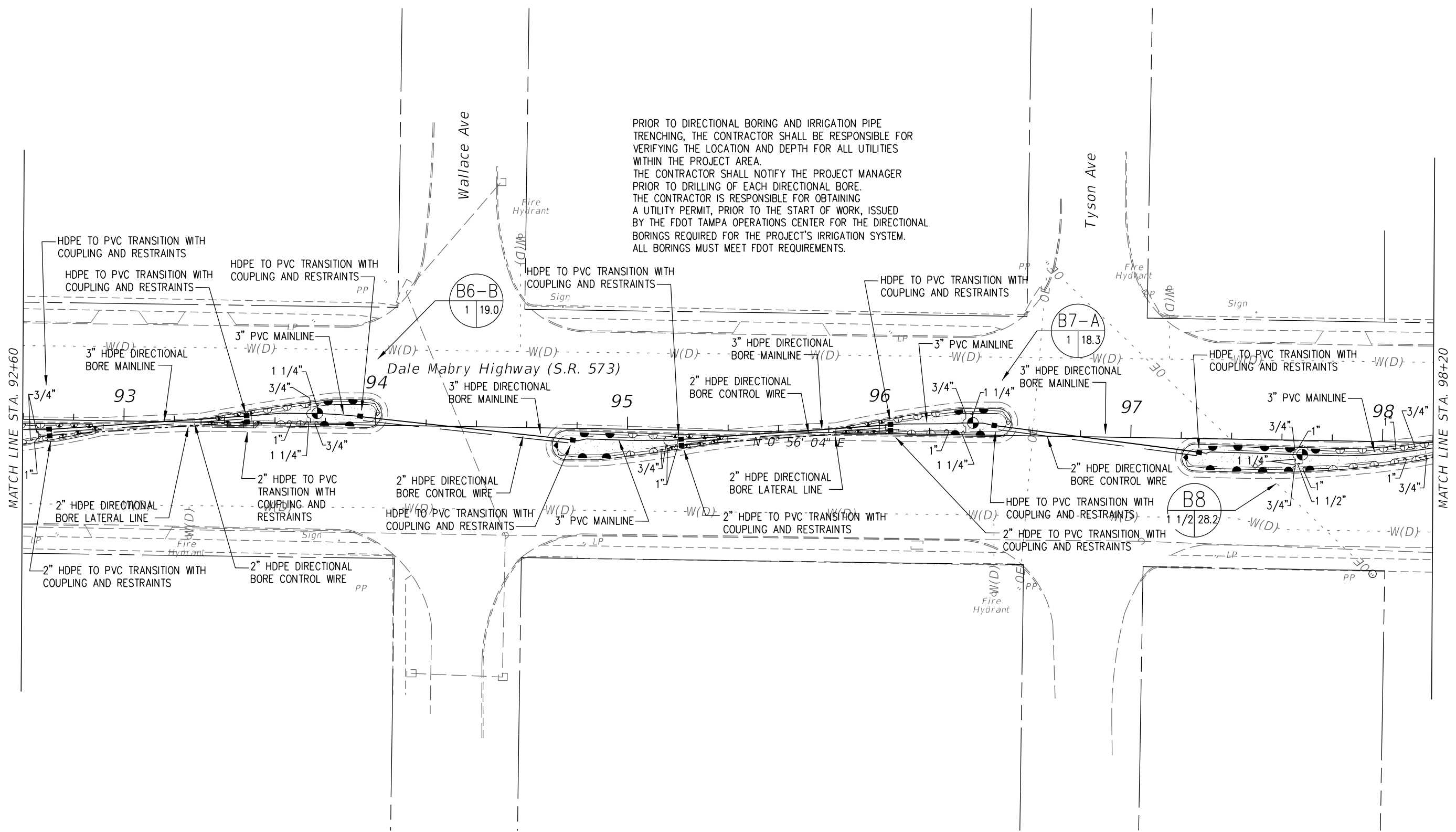
B6-A  
1 14.5

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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 241 Stewarton Road  
 Mill Run, PA 15464  
 Office: 941-795-7458 Cell: 941-812-2768  
 Skip Colborn, R.L.A., LEED-AP, CID  
 License No. LA0001484

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

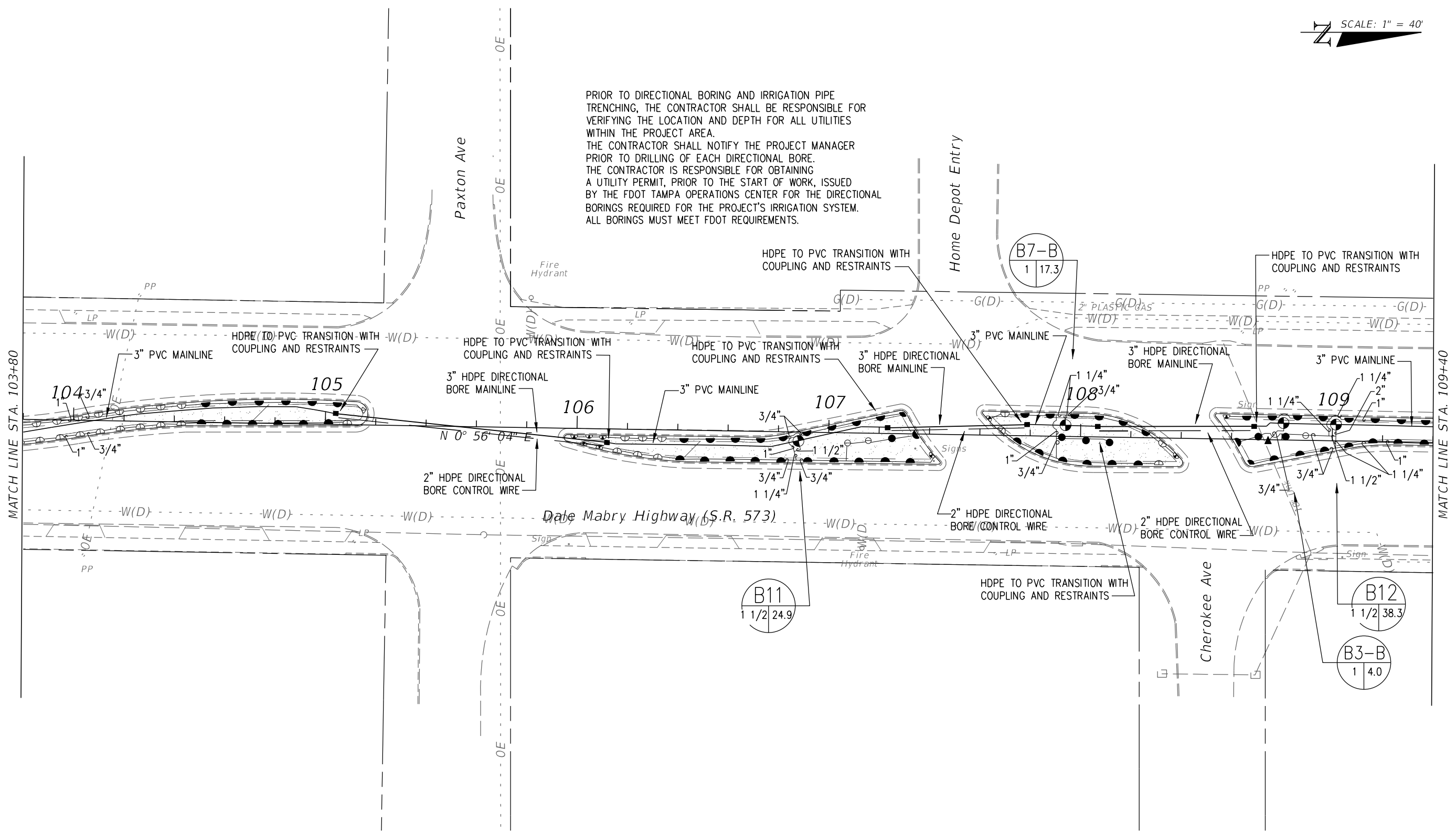
**IRRIGATION PLAN (12)**

SHEET NO.  
L-43



SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER PRIOR TO DRILLING OF EACH DIRECTIONAL BORE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A UTILITY PERMIT, PRIOR TO THE START OF WORK, ISSUED BY THE FDOT TAMPA OPERATIONS CENTER FOR THE DIRECTIONAL BORINGS REQUIRED FOR THE PROJECT'S IRRIGATION SYSTEM. ALL BORINGS MUST MEET FDOT REQUIREMENTS.



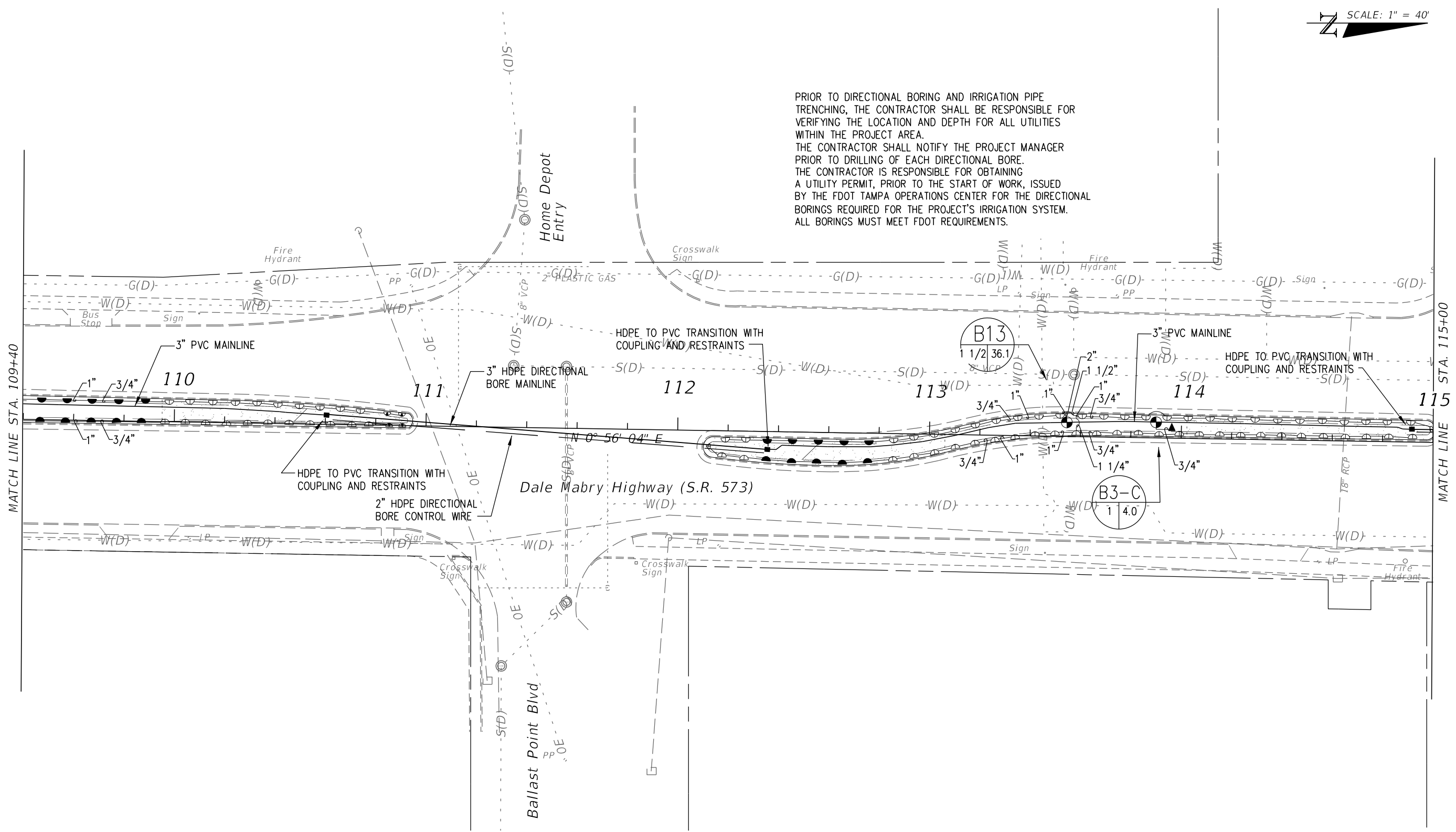
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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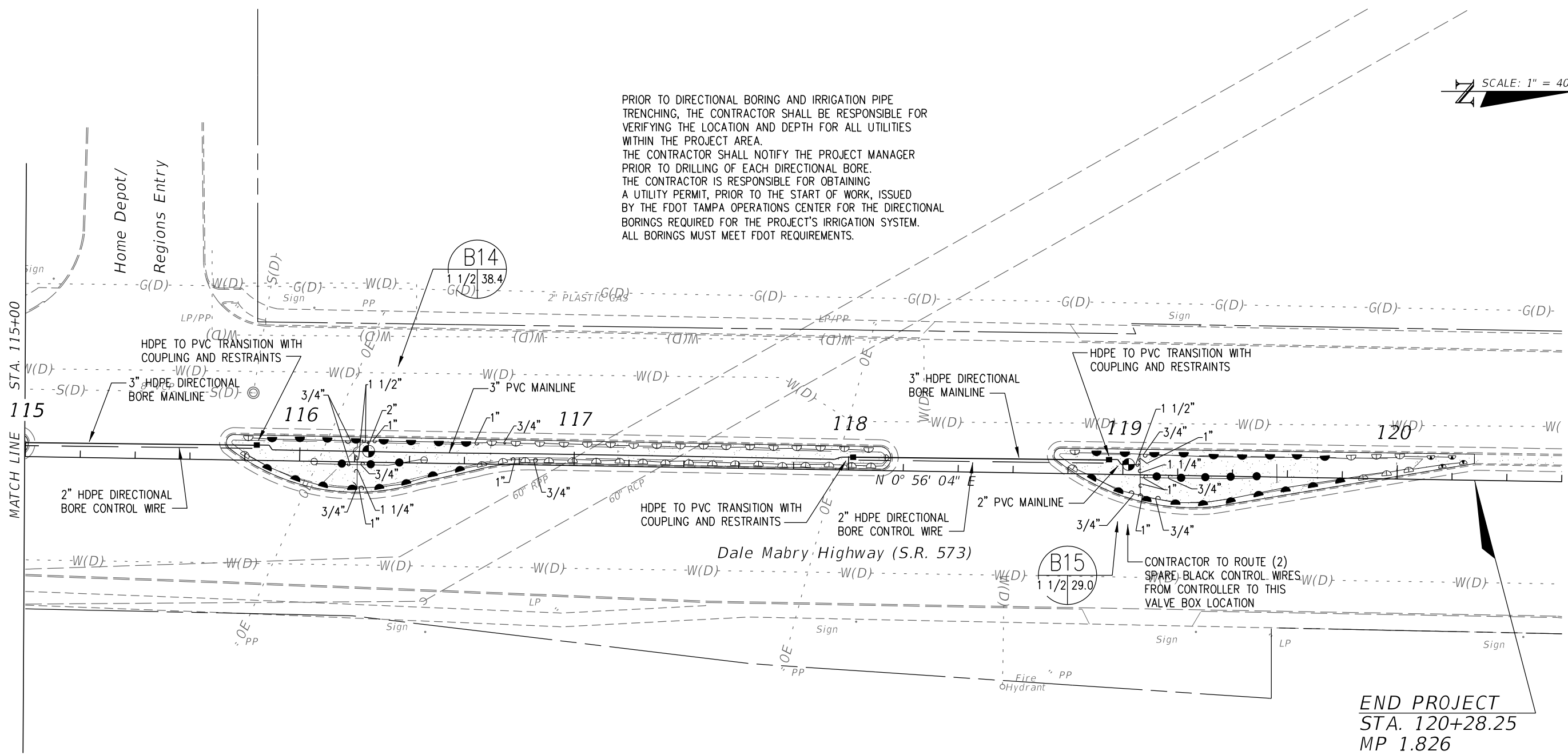
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

SCALE: 1" = 40'

PRIOR TO DIRECTIONAL BORING AND IRRIGATION PIPE TRENCHING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH FOR ALL UTILITIES WITHIN THE PROJECT AREA.  
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 ALL BORINGS MUST MEET FDOT REQUIREMENTS.



END PROJECT  
 STA. 120+28.25  
 MP 1.826

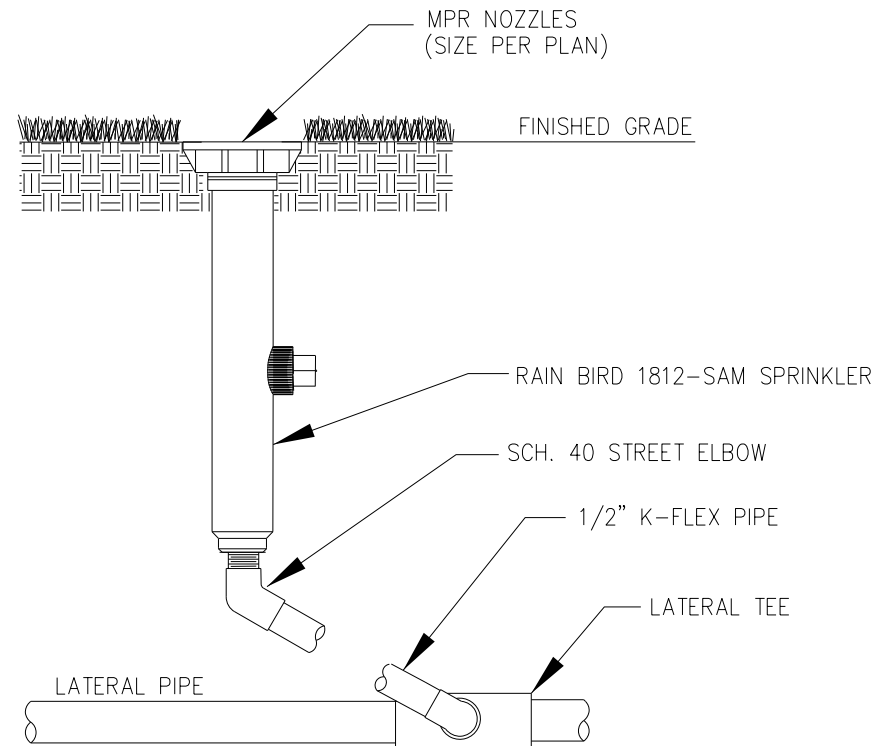
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		



NOTE: RAIN BIRD 1812-SAM SPRINKLERS TO BE INSTALLED UNLESS NOTED OTHERWISE.

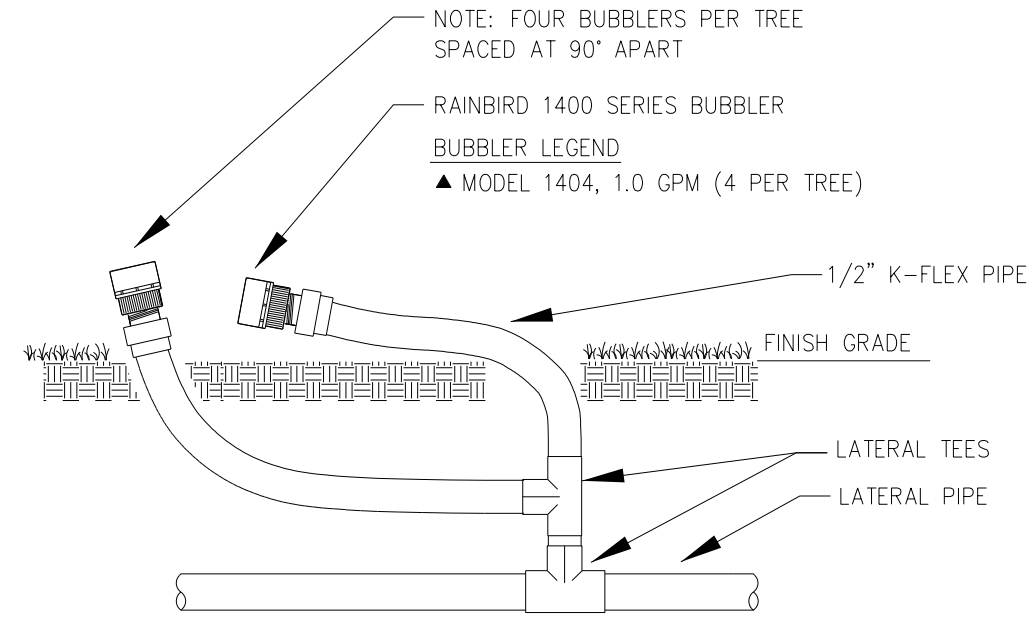


**RAIN BIRD 1812-SAM SPRINKLER**

NTS

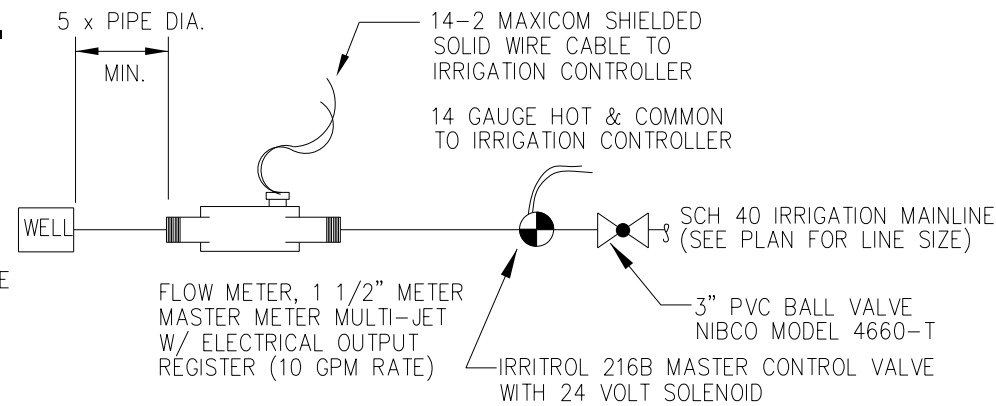
5" WELL WITH 5 HP VFD SUBMERSIBLE PUMP CAPABLE OF 40 GPM AT 60 PSI.  
IRRIGATION CONTRACTOR TO COORDINATE PERMITS AND INSTALLATION.

NOTE:  
1. BUBBLERS TO BE INSTALLED ADJACENT TO ROOTBALL PERIMETER, DO NOT INSTALL BUBBLERS ON TOP OF ROOTBALL OR NEXT TO TRUNK



**RAIN BIRD 1400 SERIES BUBBLER APPLICATION**

NTS



NOTE: ALL COMPONENTS TO BE INSTALLED PER LOCAL CODE AND MANUFACTURER RECOMMENDATIONS.  
ALL COMPONENTS TO BE INSTALLED IN SEPARATE JUMBO VALVE BOXES.

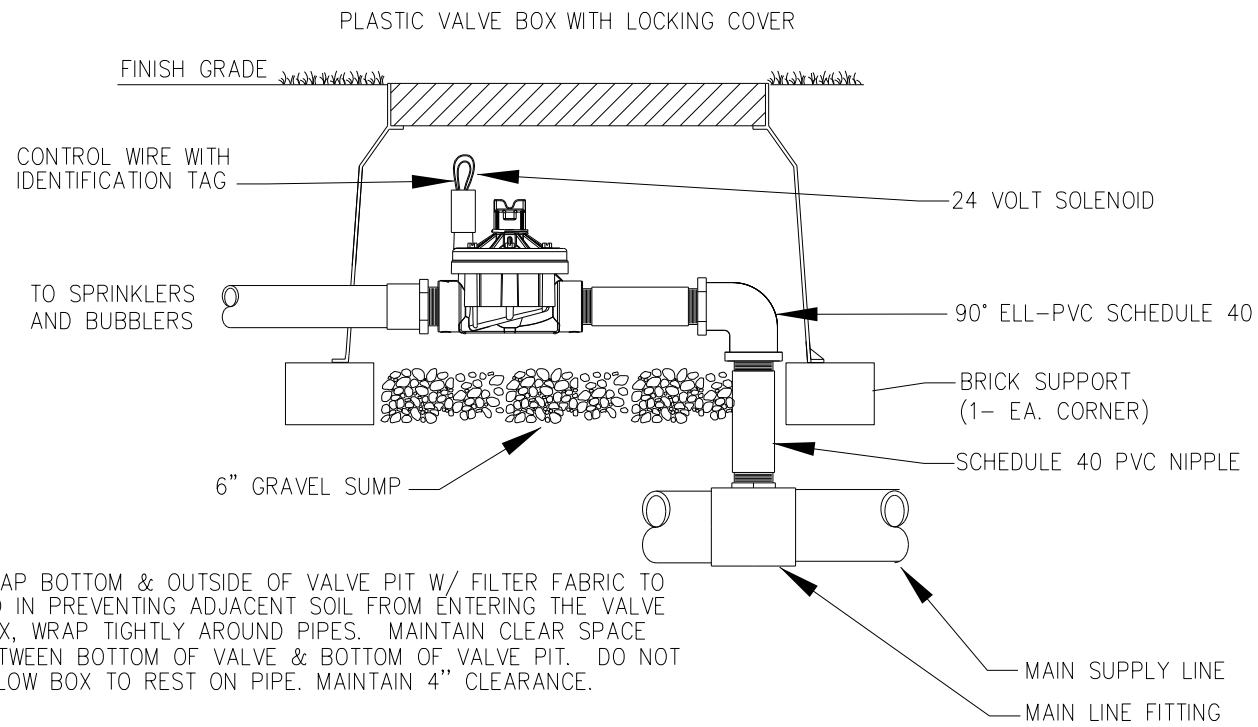
**FLOWMETER ASSEMBLY SCHEMATIC**

NTS

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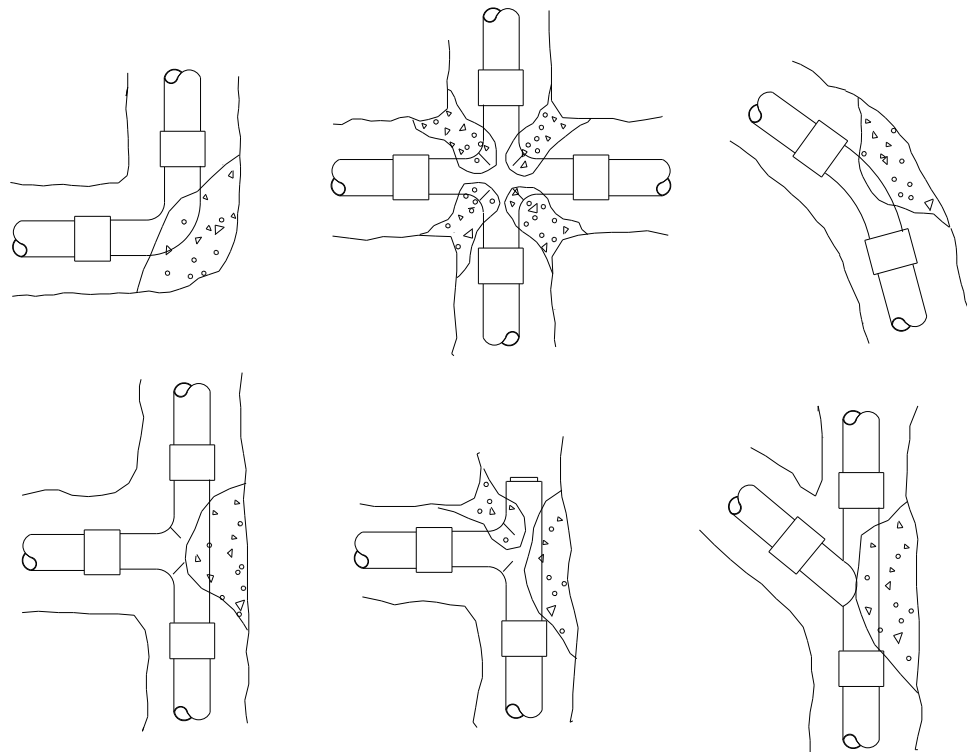
REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.  L-48
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					573	HILLSBOROUGH	436634-2-58-01	<b>IRRIGATION DETAILS (1)</b>



WRAP BOTTOM & OUTSIDE OF VALVE PIT W/ FILTER FABRIC TO AID IN PREVENTING ADJACENT SOIL FROM ENTERING THE VALVE BOX, WRAP TIGHTLY AROUND PIPES. MAINTAIN CLEAR SPACE BETWEEN BOTTOM OF VALVE & BOTTOM OF VALVE PIT. DO NOT ALLOW BOX TO REST ON PIPE. MAINTAIN 4" CLEARANCE.

### IRRITROL 200B SERIES CONTROL VALVE

NTS



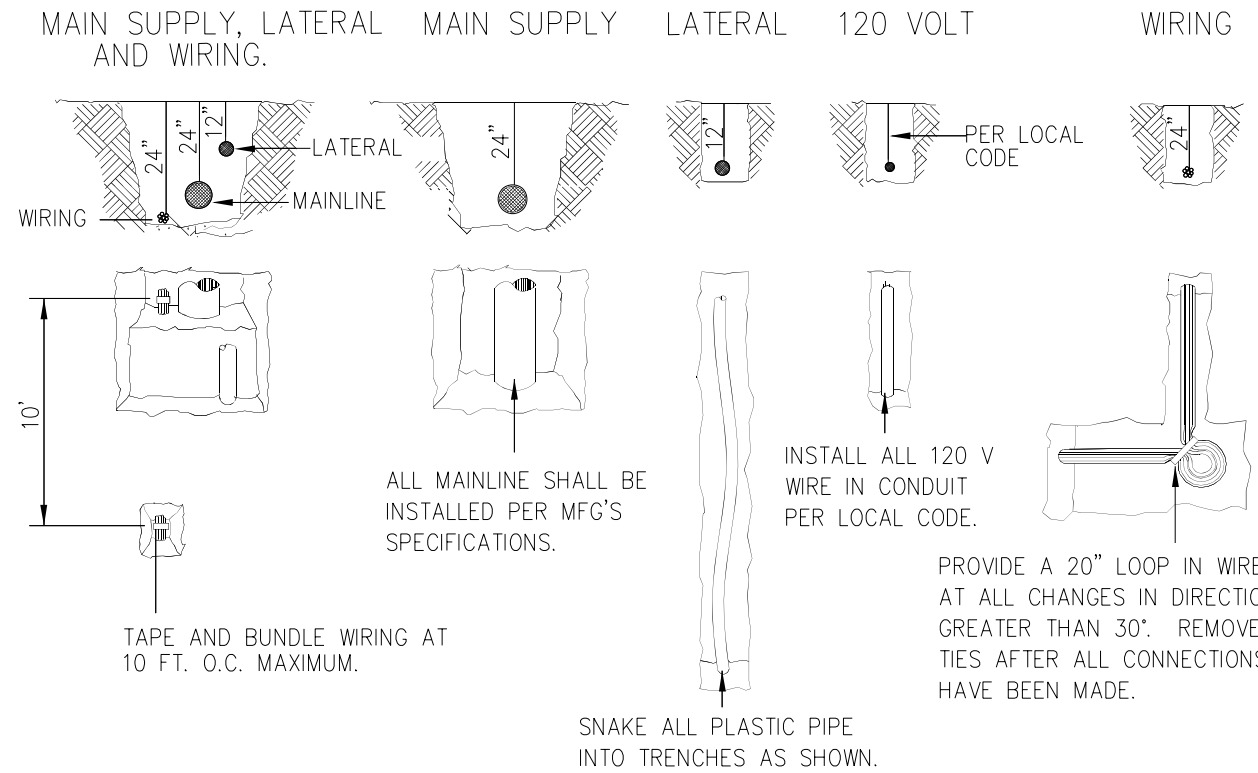
#### INSTALLATION NOTES

- 3000 PSI CONCRETE OR BETTER IS TO BE USED FOR THRUST BLOCKS.
- FOR 45°/90° FITTINGS, MINIMUM OF 2 CUBIC FEET OF CONCRETE TO BE USED.
- FOR 22-1/2° FITTINGS, MINIMUM OF 0.5 CUBIC FEET OF CONCRETE TO BE USED.
- FOR TEES, MINIMUM OF 2 CUBIC FEET OF CONCRETE TO BE USED.

THRUST BLOCKS REQUIRED FOR IRRIGATION MAINLINE 3" AND LARGER.

### THRUST BLOCK REINFORCEMENT

NTS



- DEPTH MEASUREMENTS ARE TO BE DONE FROM FINISH GRADE TO TOP OF PIPE.
- PROVIDE A 6" MINIMUM VERTICAL SEPARATION BETWEEN MAINLINES AND LATERAL LINES.
- ALL TRENCHES SHALL BE BACKFILLED WITH CLEAN SOIL FREE OF DEBRIS & NOXIOUS WEEDS.

### TRENCHING DETAIL

NTS

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

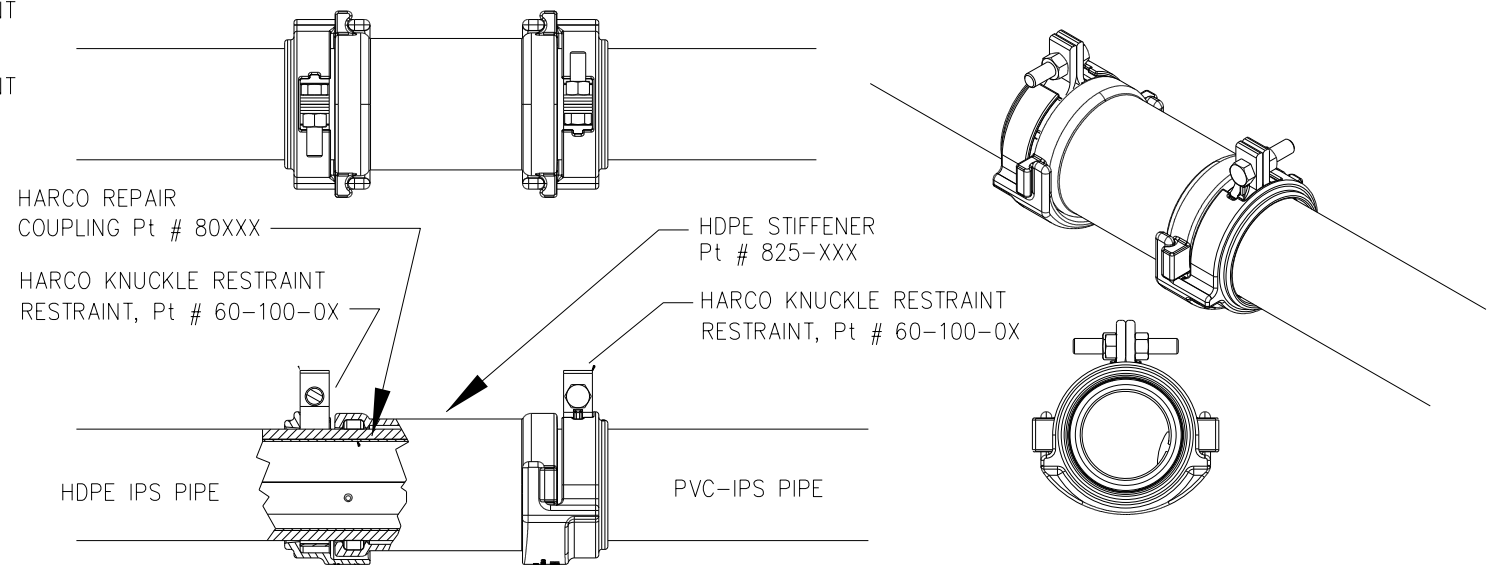
COLBORN DESIGN GROUP, INC.  
241 Stewarton Road  
Mill Run, PA 15464  
Office: 941-795-7458 Cell: 941-812-2768  
Skip Colborn, R.L.A., LEED-AP, CID  
License No. LA0001484

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
573	HILLSBOROUGH	436634-2-58-01

### IRRIGATION DETAILS (2)

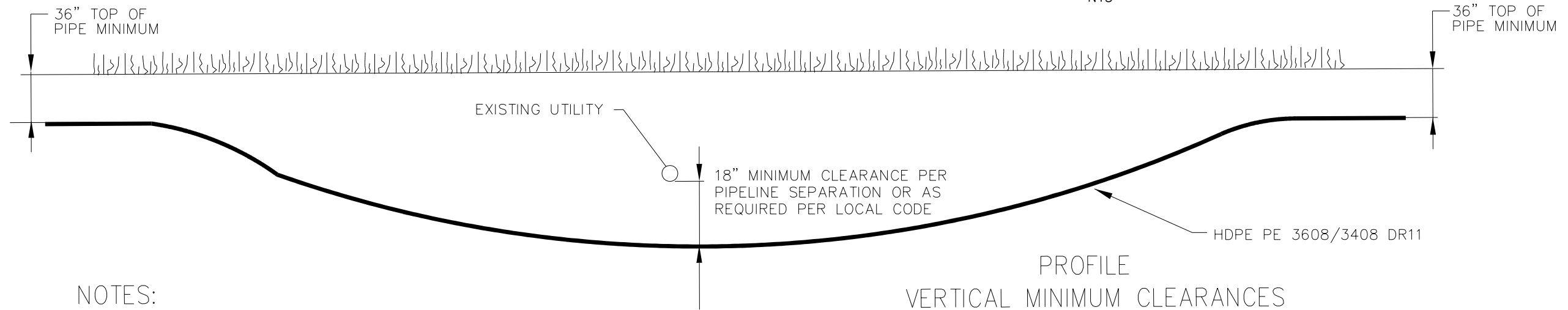
SHEET NO.  
L-49

- 2" HARCO KNUCKLE RESTRAINT RESTRAINT, Pt # 60-100-02
- 3" HARCO KNUCKLE RESTRAINT RESTRAINT, Pt # 60-100-03
- 2" HDPE STIFFENER Pt # 825-020
- 3" HDPE STIFFENER Pt # 825-030
- 2" HARCO REPAIR COUPLING Pt # 80140
- 3" HARCO REPAIR COUPLING Pt # 80340



**HDPE PIPE TO PVC PIPE TRANSITION WITH COUPLING AND RESTRAINTS**

NTS



**TYPICAL HORIZONTAL DIRECTIONAL DRILL**

NTS

**NOTES:**

1. ALL HORIZONTAL DIRECTIONAL DRILLING INSTALLATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE FLORIDA D.O.T. UTILITY ACCOMMODATIONS MANUAL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF AFFECTED AGENCIES AND COORDINATION WITH ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MATERIALS, INCLUDING DRILLING FLUID, SHALL BE REMOVED FROM THE SITE PRIOR TO RESTORATION OF DISTURBED AREAS.
4. EXCAVATIONS SHALL BE RESTORED IN ACCORDANCE WITH THE LOCAL UTILITIES STANDARD MANUAL AND STANDARD DETAILS FOR TRENCH RESTORATION.
5. CASING DIAMETER SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION.

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					573	HILLSBOROUGH	436634-2-58-01	<b>IRRIGATION DETAILS (3)</b>

MOTOROLA CONTROLLER TO COMMUNICATE WITH THE CITY OF TAMPA'S MOTOROLA CENTRAL CONTROL SYSTEM. SEE MATERIAL LIST TABLE FOR MOTOROLA COMPONENTS

PROPOSED MOTOROLA IRRInet-ACE WITH 2-16 INPUT/OUTPUT MODULES AND A MOTOROLA IRRInet-M 24 STATION UNIT WITH AUXILIARY RELAYS, UHF 400 MHz RADIO MOUNTED IN A 24" STAINLESS STEEL CABINET INSTALLED IN AN APPROVED CITY OF TAMPA STAINLESS STEEL PEDESTAL. CITY OF TAMPA'S PARKS AND MAINTENANCE PERSONNEL SHALL BE CONTACTED TO COORDINATE MOTOROLA COMPONENT PURCHASES AND CONTROLLER INSTALLATION.

STAINLESS STEEL CABINET PER CITY OF TAMPA STANDARDS

3" x 24"R SCH 40 CONDUIT SWEEP ELL FOR CONTROL WIRING

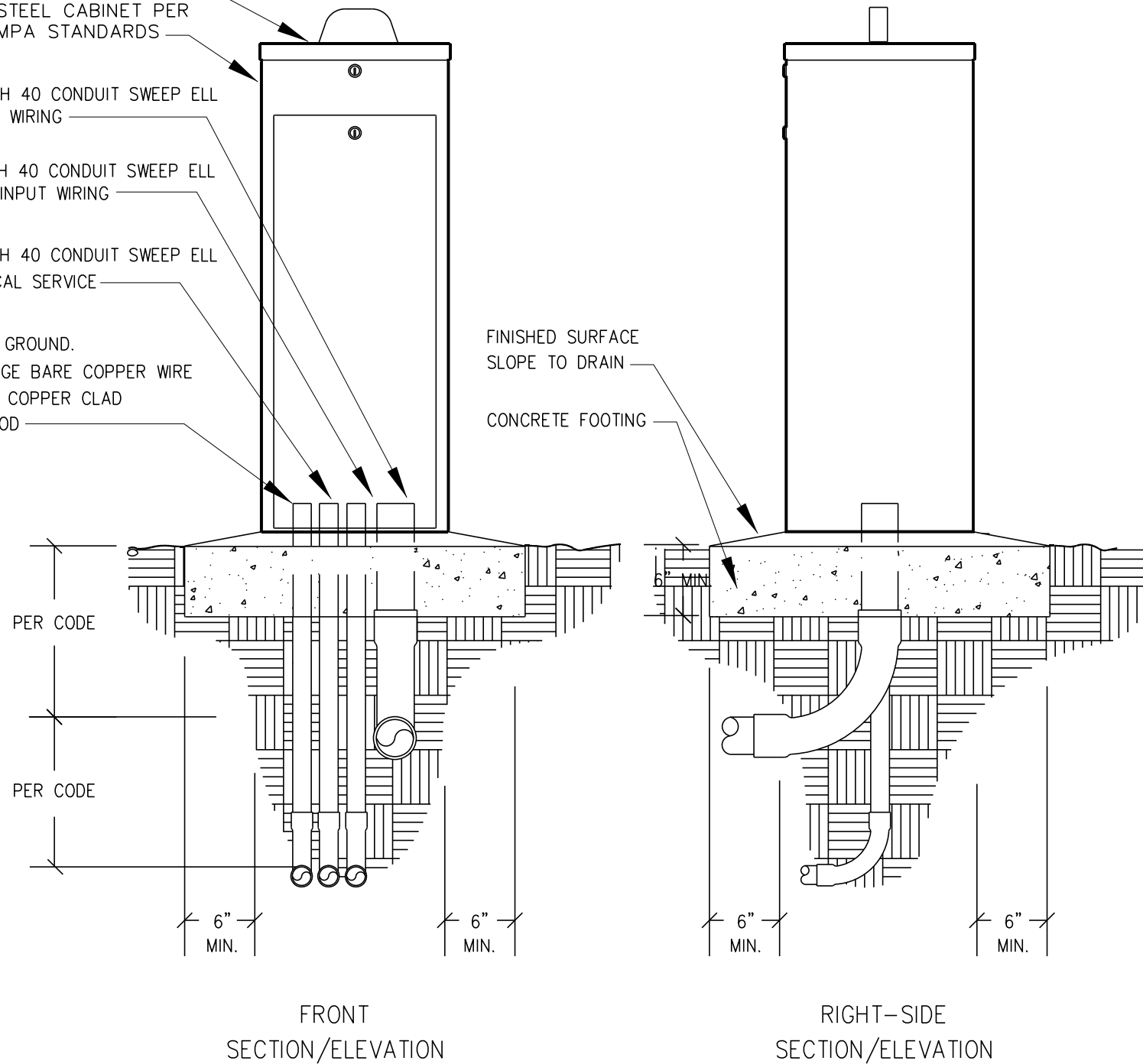
1" x 18"R SCH 40 CONDUIT SWEEP ELL FOR SENSOR INPUT WIRING

1" x 18"R SCH 40 CONDUIT SWEEP ELL FOR ELECTRICAL SERVICE

CONDUIT FOR GROUND.  
ROUTE 4 GAUGE BARE COPPER WIRE TO 5/8" x 8' COPPER CLAD GROUNDING ROD

FINISHED SURFACE SLOPE TO DRAIN

CONCRETE FOOTING

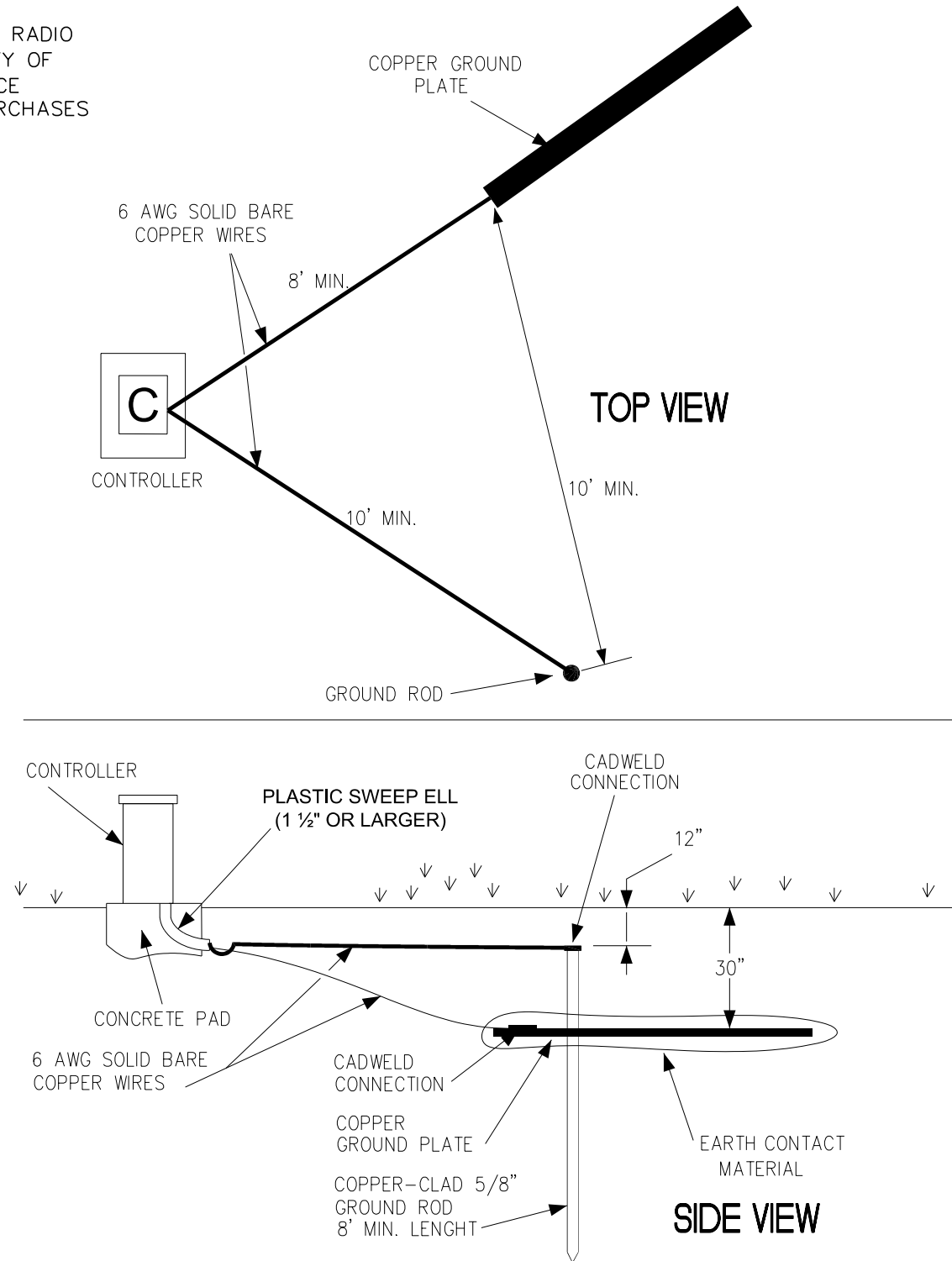


FRONT SECTION/ELEVATION

RIGHT-SIDE SECTION/ELEVATION

**MOTOROLA IRRInet-M and ACE CONTROLLERS**

NTS



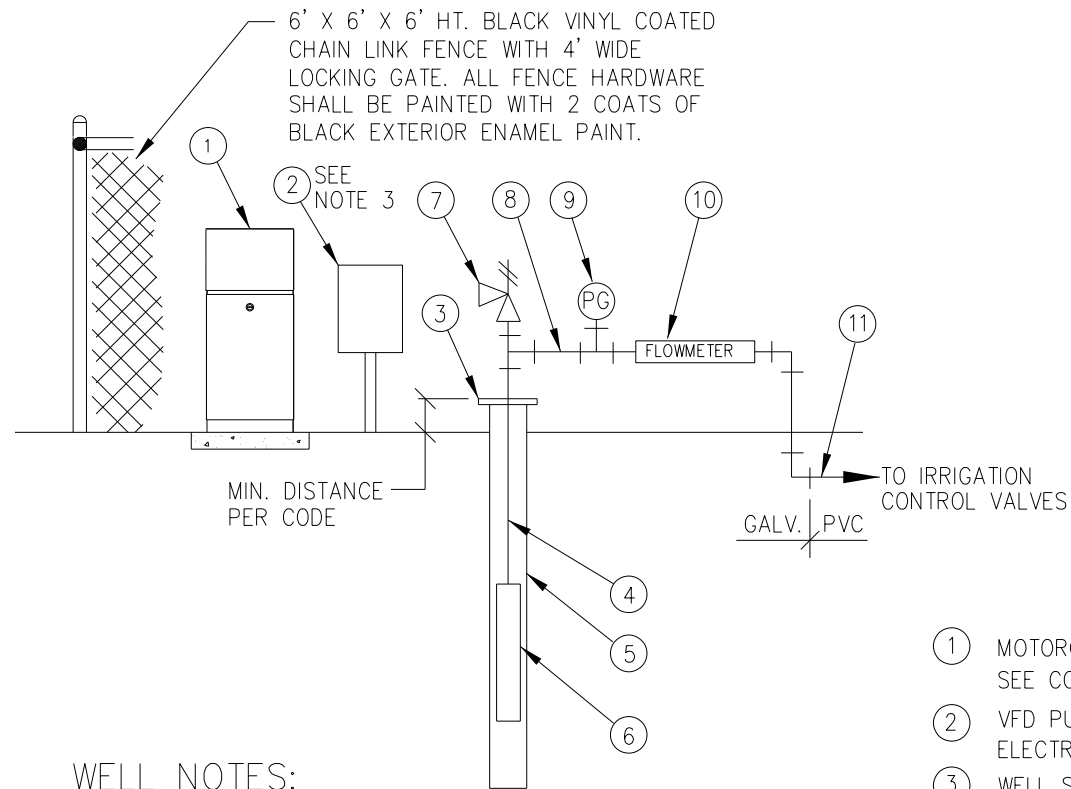
**GROUNDING PLATE DETAIL**

NTS

12/7/2015 8:22:39 AM P:\Projects\023\023-17002-43663425801\landscap\DETLDD01.dgn

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					573	HILLSBOROUGH	436634-2-58-01	<b>IRRIGATION DETAILS (4)</b>



**WELL NOTES:**

1. ALL EXPOSED WELL EQUIPMENT TO BE PAINTED 2 COATS OF DARK GREEN FLAT EXTERIOR ENAMEL PAINT.
2. ALL MATERIAL MUST BE INSTALLED PER LOCAL CODES. CONTRACTOR WILL BE HELD RESPONSIBLE FOR CODE COMPLIANCE.
3. ELECTRICAL POWER DROP AND ELECTRICAL POWER SUPPLY TO PUMP CONTROL BOX AND IRRIGATION CONTROLLER IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR. ALL ELECTRICAL WORK SHALL BE BY A QUALIFIED ELECTRICAL CONTRACTOR.

- ① MOTOROLA IRRIGATION CONTROLLER  
SEE CONTROLLER DETAIL FOR MODEL TYPE
- ② VFD PUMP CONTROL BOX WITH ELECTRICAL DISCONNECT
- ③ WELL SEAL
- ④ GALVANIZED SCH. 40 DROP PIPE
- ⑤ 5" WELL CASING
- ⑥ 5 HP VFD SUBMERSIBLE PUMP, CONTRACTOR TO SUBMIT PUMP MODEL SPECIFICATIONS FOR AN IRRIGATION DEMAND OF 40 GPM & 60 PSI DISCHARGE. ELECTRICAL REQUIREMENT OF 240 VOLT/ 3 PHASE
- ⑦ PRESSURE RELIEF VALVE
- ⑧ GALVANIZED SCH. 40 PIPE AND FITTINGS
- ⑨ PRESSURE GAGE, LIQUID FILLED
- ⑩ FLOWMETER ASSEMBLY, SEE ASSEMBLY DETAIL FOR ALL COMPONENTS
- ⑪ IRRIGATION MAINLINE, PVC SCHEDULE 40

**WELL STATION SCHEMATIC**

NTS

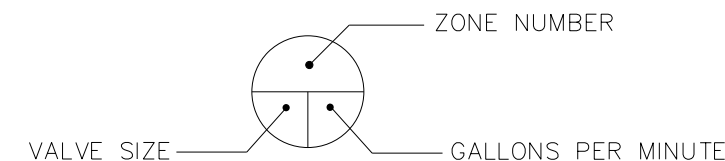
**CONTROLLER SCHEDULE**

**SYSTEM 'A'**

ZONE	GPM	VALVE SIZE	TYPE
A1	24.6	1 1/2"	SPRAY
A2	38.2	1 1/2"	SPRAY
A3	37.6	1 1/2"	SPRAY
A4	37.6	1 1/2"	SPRAY
A5	37.6	1 1/2"	SPRAY
A6	37.1	1 1/2"	SPRAY
A7-A	4.0	1"	BUBBLER
A7-B	4.0	1"	BUBBLER
	8.0		
A8	26.1	1 1/2"	SPRAY
A9	24.4	1 1/2"	SPRAY
A10	24.2	1 1/2"	SPRAY
A11	30.0	1 1/2"	SPRAY
A12	32.8	1 1/2"	SPRAY
A13-A	12.0	1"	BUBBLER
A13-B	4.0	1"	BUBBLER
A13-C	4.0	1"	BUBBLER
	20.0		
A14	32.8	1 1/2"	SPRAY
A15	32.2	1 1/2"	SPRAY
A16	32.4	1 1/2"	SPRAY
A17	32.8	1 1/2"	SPRAY
A18	32.8	1 1/2"	SPRAY
A19	37.2	1 1/2"	SPRAY
A20	33.3	1 1/2"	SPRAY
A21	36.5	1 1/2"	SPRAY
A22	37.8	1 1/2"	SPRAY
A23	23.0	1 1/2"	SPRAY

**SYSTEM 'B'**

ZONE	GPM	VALVE SIZE	TYPE
B1	39.0	1 1/2"	SPRAY
B2	24.2	1 1/2"	SPRAY
B3-A	4.0	1"	BUBBLER
B3-B	4.0	1"	BUBBLER
B3-C	4.0	1"	BUBBLER
	12.0		
B4	38.5	1 1/2"	SPRAY
B5	24.8	1 1/2"	SPRAY
B6-A	14.5	1"	SPRAY
B6-B	19.0	1"	SPRAY
	33.5		
B7-A	18.3	1"	SPRAY
B7-B	17.3	1"	SPRAY
	35.6		
B8	28.2	1 1/2"	SPRAY
B9	23.3	1 1/2"	SPRAY
B10	33.5	1 1/2"	SPRAY
B11	24.9	1 1/2"	SPRAY
B12	38.3	1 1/2"	SPRAY
B13	36.1	1 1/2"	SPRAY
B14	38.4	1 1/2"	SPRAY
B15	29.0	1 1/2"	SPRAY



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



REVISIONS				COLBORN DESIGN GROUP, INC. 241 Stewarton Road Mill Run, PA 15464 Office: 941-795-7458 Cell: 941-812-2768 Skip Colborn, R.L.A., LEED-AP, CID License No. LA0001484	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			IRRIGATION DETAILS (5)	SHEET NO.  L-52
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

# IRRIGATION NOTES

- 1) ALL IRRIGATION COMPONENTS AND INSTALLATION SHALL CONFORM TO THE CITY TAMPA IRRIGATION SPECIFICATIONS
- 2) THE HEAD LAYOUT HAS BEEN DESIGNED TO PROVIDE 100% COVERAGE. ANY CHANGES MADE IN THE HEAD LAYOUT DUE TO FIELD CONDITIONS SHALL BE IN ACCORDANCE WITH THESE STANDARDS.
- 3) SET SPRAY HEADS 3" AND ROTORS 6" IN FROM BACK OF CURB OR 12" IF PAVEMENT HAS NO CURB.
- 4) VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF IRRIGATION SYSTEM. MAINLINE SHALL NOT BE LOCATED WITHOUT PRIOR APPROVAL OF THE PROJECT MANAGER AND THE LANDSCAPE ARCHITECT. ALL UTILITIES AND STRUCTURES MAY NOT BE SHOWN ON THESE PLANS—CONTRACTOR SHALL VERIFY.
- 5) ALL SLEEVES UTILIZED BY THE IRRIGATION CONTRACTOR, WHETHER INSTALLED BY HIM OR NOT, SHALL BE LOCATED ON THE "AS-BUILT" DRAWINGS. THE DEPTH BELOW FINISH GRADE, TO THE NEAREST FOOT OF EACH END OF EACH SLEEVE SHALL BE NOTED AT EACH SLEEVE LOCATION ON THE "AS-BUILT" DRAWINGS. ALL SLEEVES ON PLAN FOR WALL PENETRATIONS AND UNDER SIDEWALKS SHALL BE SIZED TWO PIPE SIZES GREATER THAN PIPE IT CARRIES.
- 6) MAINLINE AND VALVES ARE SHOWN IN SCHEMATIC FORM. LOCATE AS NOTED ON PLANS.
- 7) LOCATE ALL VALVES A MINIMUM OF 24" FROM BACK OF CURB OR EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
- 8) ALL UNSIZED PIPE SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- 9) ALL VALVES SHALL BE INSTALLED IN A CARSON PLASTIC VALVE BOX WITH LOCKING LID.
- 10) IRRIGATION CONTRACTOR SHALL SECURE ANY AND ALL NECESSARY PERMITS FOR THE WORK PRIOR TO COMMENCEMENT OF HIS OPERATIONS ON-SITE. COPIES OF THE PERMITS SHALL BE SENT TO THE OWNER/GENERAL CONTRACTOR. WORK IN THE R.O.W. SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF LOCAL AND/OR STATE HIGHWAY JURISDICTION.
- 11) VERIFY WELL, ELECTRICAL POWER ,AND IRRIGATION CONTROLLER LOCATIONS AT PROJECT SITE WITH OWNER.
- 12) ELECTRIC SERVICE TO THE PUMPS AND IRRIGATION CONTROLLERS SHALL BE PROVIDED BY THE CONTRACTOR.
- 13) ALL 24 VAC WIRING SHALL BE OF DIRECT BURIAL COPPER WIRE AS FOLLOWS:  
 CONTROL WIRES - #14-1 RED  
 COMMON WIRE - #14-2 WHITE  
 EXTRA WIRES - #14-1 BLACK  
 MASTER VALVE WIRE - #14-1 BLUE

- 14) HDPE DIRECTIONAL BORES SHALL BE INSTALLED PER FDOT UTILITY STANDARDS.
- 15) MOTOROLA CONTROLLERS ASSEMBLIES SHALL BE OBTAINED FROM CENTRAL CONTROL SYSTEMS WOODLAND, CA. TELEPHONE (530) 662-6841. ALL COMPONENTS SHALL BE COMPATIBLE WITH THE CITY OF TAMPA'S EXISTING MOTOROLA CENTRAL CONTROL SYSTEM.
- 16) DURING INSTALLATION AND UPON COMPLETION OF THE IRRIGATION SYSTEM, VALVES AND FLOW METER WIRING SHALL BE NUMBERED PER THE PLAN AND ROUTED INTO THE APPROPRIATE CONTROLLER CABINET. ALL CONNECTIONS AND PROGRAMMING TO BE DONE BY CITY OF TAMPA.
- 17) CONTRACTOR SHALL KEEP A DAILY AND ACCURATE RECORDING OF WORK PREFORMED AND MAKE AVAILABLE ALL RECORD DRAWINGS FOR REVIEW BY THE ENGINEER UPON REQUEST. THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS TO THE ENGINEER AT PROJECT COMPLETION.
- 18) INSTALLATION OF WORK SHALL BE COORDINATED WITH OTHER CONTRACTORS IN SUCH A MANNER AS TO ALLOW FOR A SPEEDY AND ORDERLY COMPLETION OF ALL WORK ON THE SITE.
- 19) PRODUCTS SHALL BE AS SPECIFIED.

# IRRIGATION LEGEND

- RAIN BIRD MPR SPRAY NOZZLES UNLESS NOTED OTHERWISE
-  12-Q 30° TRAJECTORY
  -  12-T 30° TRAJECTORY
  -  12-H 30° TRAJECTORY
  -  12-TQ 30° TRAJECTORY
  -  12-F 30° TRAJECTORY
  -  10-Q 15° TRAJECTORY
  -  10-T 15° TRAJECTORY
  -  10-H 15° TRAJECTORY
  -  10-F 15° TRAJECTORY
  -  8-Q 10° TRAJECTORY
  -  8-T 10° TRAJECTORY
  -  8-H 10° TRAJECTORY
  -  8-F 10° TRAJECTORY
  -  4-Q VAN 0° TRAJECTORY
  -  4-H VAN 0° TRAJECTORY
  -  RAIN BIRD MODEL 1404 PC BUBBLER (4) PER PALM WHERE SHOWN ON PLAN
  -  MOTOROLA IRRInet-M AND ACE CONTROLLER SEE CONTROLLER DETAIL FOR MODEL AND COMPONENTS. PROVIDE CONNECTION & MATERIALS NECESSARY FOR CONTROLLER INSTALLATION AND OPERATION.
  -  HUNTER MINI-CLIK RAIN SENSOR MOUNTED ON CHAIN LINK FENCE
  -  IRRITROL 200B SERIES ELECTRIC CONTROL VALVE
  -  THREADED PVC BALL VALVE, INSTALLED PER LINE SIZE AND IN 12" VALVE BOX
  -  HDPE TO PVC TRANSITION FITTING, INCLUDES COUPLING AND RESTRAINTS
  -  SCHEDULE 40 PVC IRRIGATION MAINLINE, SOLVENT WELD
  -  SCHEDULE 40 PVC LATERAL LINE, SOLVENT WELD
  -  3' HDPE DR11 IRRIGATION MAINLINE
  -  2' HDPE DR11 IRRIGATION LATERAL LINE
  -  2' HDPE DR11 CONTROL WIRE CONDUIT
  -  SCHEDULE 40 PVC SLEEVE SEE PLAN FOR SLEEVE SIZES

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		

NOTE: QUANTITIES ARE APPROXIMATE

IRRIGATION TABULATION OF QUANTITIES				
DESCRIPTION	UNIT	SYSTEM "A"	SYSTEM "B"	TOTAL
MOTOROLA IRRinet-ACE WITH 2-16 INPUT/OUTPUT MODULES AND (2) UHF 400 MHz RADIOS ALL MOUNTED ON A 24" STRONG BOX BACK PLATE INSIDE STAINLESS STEEL CABINET WHICH MEETS CITY OF TAMPA STANDARDS.	EA.	1		1
MOTOROLA IRRinet-M 24 STATION MODEL WITH UHF 400 MHz RADIO MOUNTED IN A 18" STAINLESS STEEL CABINET WHICH MEETS CITY OF TAMPA STANDARDS.	EA.		1	1
5" WELL WITH 5 HP VFD SUBMERSIBLE PUMP CAPABLE OF 40 GPM @ 60 PSI DISCHARGE. REFER WELL STATION SCHEMATIC DETAIL FOR ALL REQUIRED COMPONENTS.	EA.	1	1	2
1 1/2" MASTER FLOW METER WITH 10 GALLON REGISTER	EA.	1	1	2
MAXI-COMM 14/2 FLOW METER COMMUNICATION CABLE WITH WIRE CONNECTORS	LF.	40	40	80
5/8" X 8' COPPER GROUNDING ROD WITH #6 SOLID BARE COPPER WIRE AND CADWELD CONNECTIONS	EA.	1	1	2
COPPER GROUNDING PLATE ASSEMBLY	EA.	1	1	2
IRRITROL 216B MASTER VALVE 24V SOLENOID WITH VALVE BOX	EA.	1	1	2
IRRITROL 214B CONTROL VALVE 24V SOLENOID WITH VALVE BOX	EA.	5	7	12
IRRITROL 216B CONTROL VALVE 24V SOLENOID WITH VALVE BOX	EA.	21	12	33
RAIN BIRD 1812-SAM SPRINKLER WITH RAIN BIRD NOZZLE AND 1/2" K-FLEX PIPE @ 24" LONG	EA.	841	705	1,546
RAIN BIRD 1404 PC BUBBLER W/ 1/2" K-FLEX PIPE @ 5' LONG	EA.	28	12	40
3" PVC MAINLINE BALL VALVE IN VALVE BOX	EA.	3	3	6
3" PVC SCHEDULE 40 MAINLINE, SOLVENT WELD WITH FITTINGS AND THRUST BLOCKS	LF.	2,615	1,990	4,605
2" PVC SCHEDULE 40 MAINLINE, SOLVENT WELD WITH FITTINGS	LF.	20	25	45
2" PVC SCHEDULE 40 LATERAL LINE, SOLVENT WELD WITH FITTINGS	LF.	80	35	115
1 1/2" PVC SCHEDULE 40 LATERAL LINE, SOLVENT WELD WITH FITTINGS	LF.	110	60	170
1 1/4" PVC SCHEDULE 40 LATERAL LINE, SOLVENT WELD WITH FITTINGS	LF.	350	310	660
1" PVC SCHEDULE 40 LATERAL LINE, SOLVENT WELD WITH FITTINGS	LF.	1,770	995	2,765
3/4" PVC SCHEDULE 40 LATERAL LINE, SOLVENT WELD WITH FITTINGS	LF.	5,290	4,950	10,240
3" HDPE PIPE TO PVC PIPE TRANSITION ASSEMBLY	EA.	18	38	56
2" HDPE PIPE TO PVC PIPE TRANSITION ASSEMBLY	EA.		6	6
3" HDPE PE 3608/3408 IPS DR 11 DIRECTIONAL BORE MAINLINE	LF.	1,230	2,190	3,420
2" HDPE PE 3608/3408 IPS DR 11 DIRECTIONAL BORE LATERAL	LF.		245	245
2" HDPE PE 3608/3408 IPS DR 11 DIRECTIONAL BORE CONTROL WIRE CONDUIT	LF.	1,230	2,190	3,420
4" SCHEDULE 40 PVC SLEEVE	LF.	35		35
2" SCHEDULE 40 PVC SLEEVE	LF.	10		10
VALVE CONTROL WIRE 14/1 GAUGE WITH WATERPROOF WIRE CONNECTORS	LF.	46,575	31,255	77,830
VALVE COMMON WIRE 12/1 GAUGE WITH WATERPROOF WIRE CONNECTORS	LF.	4,185	4,340	8,525

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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					573	HILLSBOROUGH	436634-2-58-01		L-54

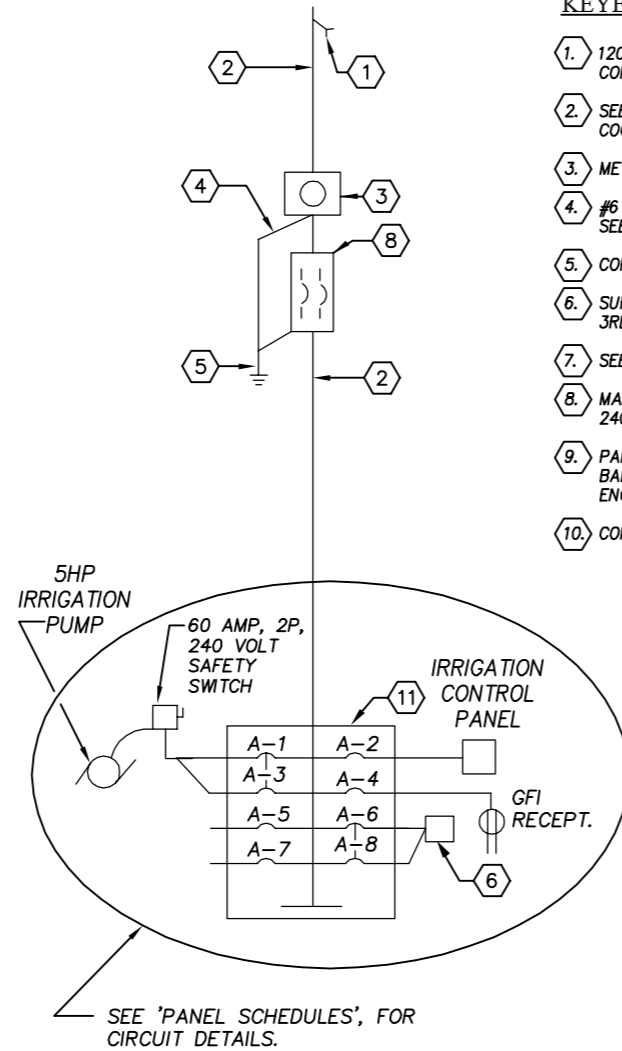
# RISER DIAGRAM AND SCHEMATIC

## GENERAL NOTES:

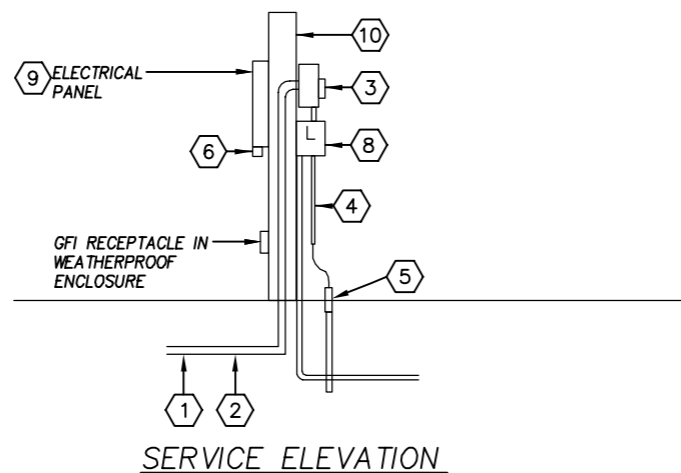
1. PROVIDE ELECTRICAL SERVICE AND EQUIPMENT CONNECTION AT EACH IRRIGATION EQUIPMENT LOCATION. SEE LANDSCAPE PLANS FOR LOCATIONS.
2. COORDINATE WITH TAMPA ELECTRIC FOR FINAL CONNECTION POINT LOCATION.

## KEYED NOTES:

1. 120/240-VOLT, SINGLE PHASE, 3-WIRE UNDERGROUND SERVICE CONNECTION.
2. SEE UNDERGROUND FEEDER SIZE NOTE IN PANEL SCHEDULES. COORDINATE WITH TAMPA ELECTRIC FOR CONNECTION POINT.
3. METER SOCKET BY CONTRACTOR. METER BY POWER COMPANY.
4. #6 INSULATED COPPER GROUND WIRE IN RIGID GALVANIZED STEEL. SEE GROUND NOTE IN PANEL SCHEDULE.
5. COPPER CLAD GROUND ROD 5/8" DIA. 40 FEET LONG.
6. SURGE PROTECTIVE DEVICE (SPD) TYPE II IN N3R ENCLOSURE UL 1449, 3RD EDITION-2009.
7. SEE FEEDER SIZE NOTE IN PANEL SCHEDULE.
8. MAIN DISCONNECT SWITCH - FUSED SAFETY SWITCH, 2-POLE, 240-VOLT. FOR SIZE SEE PANEL SCHEDULE.
9. PANELBOARD, 120/240-VOLT, SINGLE PHASE, 3-WIRE WITH GROUND BAR AND CIRCUIT BREAKERS AS INDICATED IN PANEL SCHEDULES. N3R ENCLOSURE.
10. CONCRETE PEDESTAL POLE MINIMUM 12' HIGH.



ONE LINE DIAGRAM (NTS)



## ELECTRICAL NOTES

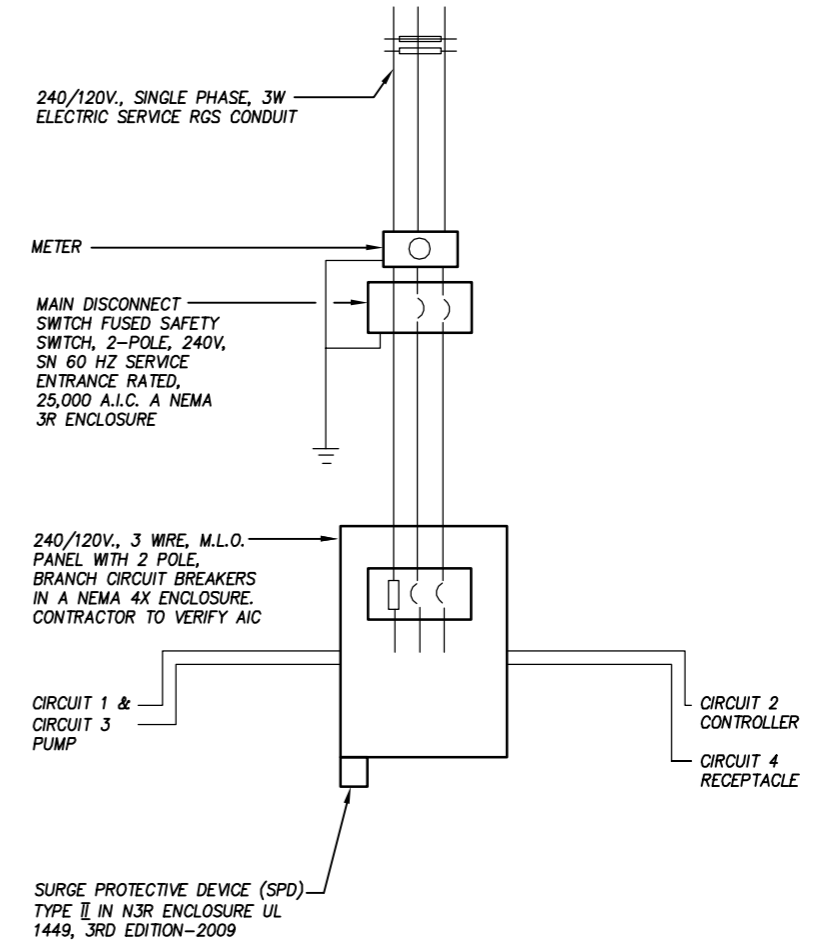
- ALL WORK SHALL CONFORM WITH THE LATEST ACCEPTED REQUIREMENTS OF NATIONAL, STATE AND LOCAL ELECTRICAL CODE.
- ALL SERVICE EQUIPMENT TO CONFORM TO REQUIREMENTS OF LOCAL POWER COMPANY.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS.
- CONTRACTOR SHALL VERIFY WITH POWER COMPANY PRIOR TO START OF WORK.
  - LOCATION OF TRANSFORMER OR SERVICE DROP.
  - AVAILABLE VOLTAGE.
  - AVAILABLE GROUND FAULT CURRENT.
- ALL CONDUCTORS SHALL BE SOLID COPPER, 600 VOLT WITH MINIMUM SIZE OF #12 AWG. THWN UNLESS OTHERWISE SPECIFIED. WIRE SIZES OF #8 AND LARGER SHALL BE STRANDED.
- ALL EQUIPMENT SHALL BE RATED FOR MAXIMUM AVAILABLE VOLTAGE AND GROUND FAULT CURRENT. ALL EQUIPMENT SHALL HAVE U.L. LISTING.
- CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS AND MAKE FINAL CONNECTIONS OF EQUIPMENT FURNISHED BY OTHER TRADES.
- CONTRACTOR SHALL MAINTAIN A COMPLETE TEMPORARY POWER SYSTEM DURING CONSTRUCTION.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR ONE YEAR.
- ALL CONDUITS SHALL HAVE GREEN GROUNDING CONDUCTORS INSTALLED IN ACCORDANCE WITH THE NEC TABLE 250.122.

REVISIONS				<b>LYLE ENGINEERING GROUP</b> 8308 N. SAULRAY ST. TAMPA, FL 33604 (813) 935-5009	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>RISER DIAGRAM &amp; SCHEMATIC</b>	SHEET NO.  <b>E-55</b>
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SCOTT L. LYLE, P.E. NO. 32734 CERTIFICATE OF AUTHORIZATION NO: CA5380	573	HILLSBOROUGH	N/A		

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PANEL 'A'										MAINS: 100 A., M.L.O.			
										VOLTAGE: 120/240 V., 1Ø, 3W.			
LOAD	CND. SIZE	WIRE SIZE	CKT. BKR. AMPS	P	CIR. NO.	VOLTS-AMPS		CIR. NO.	CKT. BKR. AMPS	P	WIRE SIZE	CND. SIZE	LOAD
						ØA	ØB						
A-1	1"	6	60	2	1	3360		2	30	1	10	3/4"	A-2
					3	2880		4	20	1	12	1/2	RECEPTACLE
SPARE			20	1	5			6	30	2			TVSS
SPARE			20	1	7			8					
					9			10					
					11			12					
<b>NOTES &amp; MODIFICATIONS:</b>						6240	4360	<b>TOTAL</b>				10,600 VA	
MAIN DISCONNECT SWITCH - 100 AMP, 2P, F/A 100 AMPS								<b>TOTAL</b>				44 AMPS	
GROUND SIZE - #6 AWG								<b>NO. OF POLES</b>				12	
FEEDER SIZE (3) #2 AWG, 2" RGS								<b>ENCLOSURE</b>				N4-X	
MAIN BREAKER 100 AMP, 2P								<b>MOUNTING</b>				SURFACE	
								<b>AIC RATING</b>				22,000 AMPS	



IRRIGATION SERVICE POINT  
(NTS)

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REVISIONS				<b>LYLE ENGINEERING GROUP</b> 8308 N. SAULRAY ST. TAMPA, FL 33604 (813) 935-5009	<b>STATE OF FLORIDA</b> <b>DEPARTMENT OF TRANSPORTATION</b>			<b>PANEL SCHEDULE</b>	SHEET NO.  <b>E-56</b>
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SCOTT L. LYLE, P.E. NO. 32734 CERTIFICATE OF AUTHORIZATION NO: CA5380	573	HILLSBOROUGH	N/A		

SHEET NO.	CONTENTS
1	Preface Manual On Uniform Traffic Control Devices Abbreviations Symbols
2	Definitions Temporary Traffic Control Devices Pedestrian and Bicyclist Overhead Work Railroads Sight Distance Above Ground Hazard
3	Clear Zone Widths For Work Zones Superelevation Length Of Lane Closures Overweight/Oversize Vehicles Lane Widths High-Visibility Safety Apparel Regulatory Speeds In Work Zones
4	Temporary Raised Rumble Strips Temporary Portable Rumble Strips
5	Flagger Control Survey Work Zones Signs
6	Work Zone Sign Supports
7	Project Information Sign
8	Commonly Used Warning and Regulatory Signs In Work Zones
9	Manholes/Crosswalks/Joints Truck Mounted Attenuators Removing Pavement Markings Signals Channelizing and Lighting Devices Channelizing and Lighting Devices Consistency Warning Lights Standard Orange Flag Portable Changeable (Variable) Message Signs (PCMS) Advanced Warning Arrow Boards
10	Drop-Offs In Work Zones
11	Business Entrance Temporary Asphalt Separator
12	Identifications-Channelizing and Lighting Devices
13	Pavement Markings

**PREFACE**

All projects and works on highways, roads and streets shall have a traffic control plan. All work shall be executed under the established plan and Department approved procedures. This index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets on the State Highway System. Certain requirements in this Index are based on the high volume nature of State Highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.

Index No. 600 provides Department policy and standards. Changes are only to be made thru Department approved procedures. Index Nos. 601 thru 670 provide typical applications for various situations. Modification can be made to these Indexes as long as the changes comply with the MUTCD and Department Design Standards.

The sign spacing shown on the Indexes are typical (recommended) distances. These distances may be increased or decreased based on field conditions, in order to avoid conflicts or to improve site specific traffic controls.

Except for emergencies, any road closure on State Highway System shall comply with Section 335.15, F.S.

**MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES**

The Florida Department of Transportation has adopted the "Manual On Uniform Traffic Control Devices For Streets And Highways" (MUTCD) and subsequent revisions and addendums, as published by the U.S. Department of Transportation, Federal Highway Administration, for mandatory use on the State Maintained Highway System whenever there exists the need for construction, maintenance operations or utility work.

**ABBREVIATIONS**

Abbreviations assigned to the 600 series Design Standards and applicable to traffic control plans, unless otherwise identified in the plans, are as follows:

- CFR Code of Federal Regulations
- CSIP Cost Savings Initiative Proposal
- DTOE District Traffic Operations Engineer
- FDOT Florida Department Of Transportation
- HAR Highway Advisory Radio
- L Taper Length, Buffer Length Or Taper Length Plus Buffer Space
- MAS Motorist Awareness System
- MOT Maintenance Of Traffic
- MOTC Maintenance Of Traffic Committee
- MUTCD Manual On Uniform Traffic Control Devices For Streets And Highways
- NCHRP National Cooperative Highway Research Program
- PCMS Portable Changeable (Variable) Message Sign
- PRS Portable Regulatory Sign
- R Radius
- RPM Raised Retroreflective Pavement Marker
- RSDU Radar Speed Display Unit
- S Posted Speed Of Off-Peak 85 Percentile Speed (MPH)
- SLEO Speed and Law Enforcement Officer
- TTC Temporary Traffic Control
- TCP Traffic Control Plan(s)
- TCZ Traffic Control Zones
- TMA Truck/Trailer Mounted Attenuator
- W Width Of Taper Transition In Feet, i.e., Lateral Offset

**SYMBOLS**

The symbols shown are found in the FDOT site menu under Traffic Control cell library on the CADD system. Symbols assigned to the 600 series Design Standards and applicable to traffic control plans, unless otherwise identified in the plans, are as follows:

- Work Area, Hazard Or Work Phase (Any pattern within a boundary)
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
  - Channelizing Device
- Type III Barricade
- Work Zone Sign
- Flagger
- Traffic Signal
- Advance Warning Arrow Board
- Portable Signal
- Crash Cushion
- Stop Bar
- Work Vehicle With Flashing Beacon
- Shadow (S) Or Advance Warning (AW) Vehicle With Advance Warning Arrow Board And Warning Sign
- Truck/Trailer Mounted Attenuator (TMA)
- Orange Flag For TCZ Signs
- Type B Light For TCZ Signs
- Law Enforcement Officer
- Portable Regulatory Sign
- Radar Speed Display Unit
- Portable Changeable (Variable) Message Sign
- Lane Identification + Direction Of Traffic
- Traffic Control Officer

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## DEFINITIONS

### Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

### Advisory Speed

The maximum recommended travel speed through a curve or a hazardous area.

### Travel Way

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

- a. **Travel Lane:** The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.
- b. **Auxiliary Lane:** The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

### Detour, Lane Shift, and Diversion

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

### Above Ground Hazard

An above ground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

## TEMPORARY TRAFFIC CONTROL DEVICES

All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a temporary traffic control device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

## PEDESTRIAN AND BICYCLIST

When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

## OVERHEAD WORK

Work is only allowed over a traffic lane when one of the following options is used:

### OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

### OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

### OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travelway up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

### OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

### OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Standard Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

## RAILROADS

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

## SIGHT DISTANCE

Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.


Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

## ABOVE GROUND HAZARD

Above ground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an above ground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For above ground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

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## CLEAR ZONE WIDTHS FOR WORK ZONES

The term 'clear zone' describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals; where roadside canals are present, clear zone widths are to conform with the distances to canals as described in Volume I, Chapter 4, Section 4.2 and Exhibit 4-A and 4-B of the Plans Preparation Manual.

CLEAR ZONE WIDTHS FOR WORK ZONES		
WORK ZONE SPEED (MPH)	TRAVEL LANES & MULTILANE RAMPS (feet)	AUXILIARY LANES & SINGLE LANE RAMPS (feet)
60-70	30	18
55	24	14
45-50	18	10
30-40	14	10
ALL SPEEDS CURB & GUTTER	4' BEHIND FACE OF CURB	4' BEHIND FACE OF CURB

## SUPERELEVATION

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal crown controls curvature, the minimum radii that can be applied are listed in the table below.

MINIMUM RADII FOR NORMAL CROWN	
WORK ZONE POSTED SPEED	MINIMUM RADIUS
MPH	feet
65	3130
60	2400
55	1840
50	1390
45	1080
40	820
35	610
30	430
Superelevate When Smaller Radii is Used	

## LENGTH OF LANE CLOSURES

Lane closures shall not exceed 2 miles in total length (taper, buffer space and work space) in any given direction on the Interstate or on state highways with a posted speed of 55 MPH or greater.

## OVERWEIGHT/OVERSIZE VEHICLES

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

## LANE WIDTHS

Lane widths of through roadways should be maintained through work zone travel ways wherever practical. The minimum widths for work zone travel lanes shall be as follows: 11' for Interstate with at least one 12' lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for freeways; and 10' for all other facilities.

## HIGH-VISIBILITY SAFETY APPAREL

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or 107-2010. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

**WORKERS:** All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear fitted high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

**UTILITIES:** When other industry apparel safety standards require utility workers to wear apparel that is inconsistent with FDOT requirements such as NFPA, OSHA, ANSI, etc., the other standards for apparel may prevail.

**FLAGGERS:** For daytime activities, Flagger shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, Flagger shall wear ANSI/ISEA Class 3 apparel.

## REGULATORY SPEEDS IN WORK ZONES

Traffic Control Plans (TCP's) for all projects must include specific regulatory speeds for each phase of work. This can either be the posted speed or a reduced speed. The speed shall be noted in the TCPs; this includes indicating the existing speed if no reduction is to be made. Regulatory speeds are to be uniformly established through each phase.

In general, the regulatory speed should be established to route vehicles safely through the work zone as close as to normal highway speed as possible. The regulatory speed should not be reduced more than 10 mph below the posted speed and never below the minimum statutory speed for the class of facility. When a speed reduction greater than 10 mph is imposed, the reduction is to be done in 10 mph per 500' increments.


Temporary regulatory speed signs shall be removed as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect unless new speed limit signing is provided for in the plans.

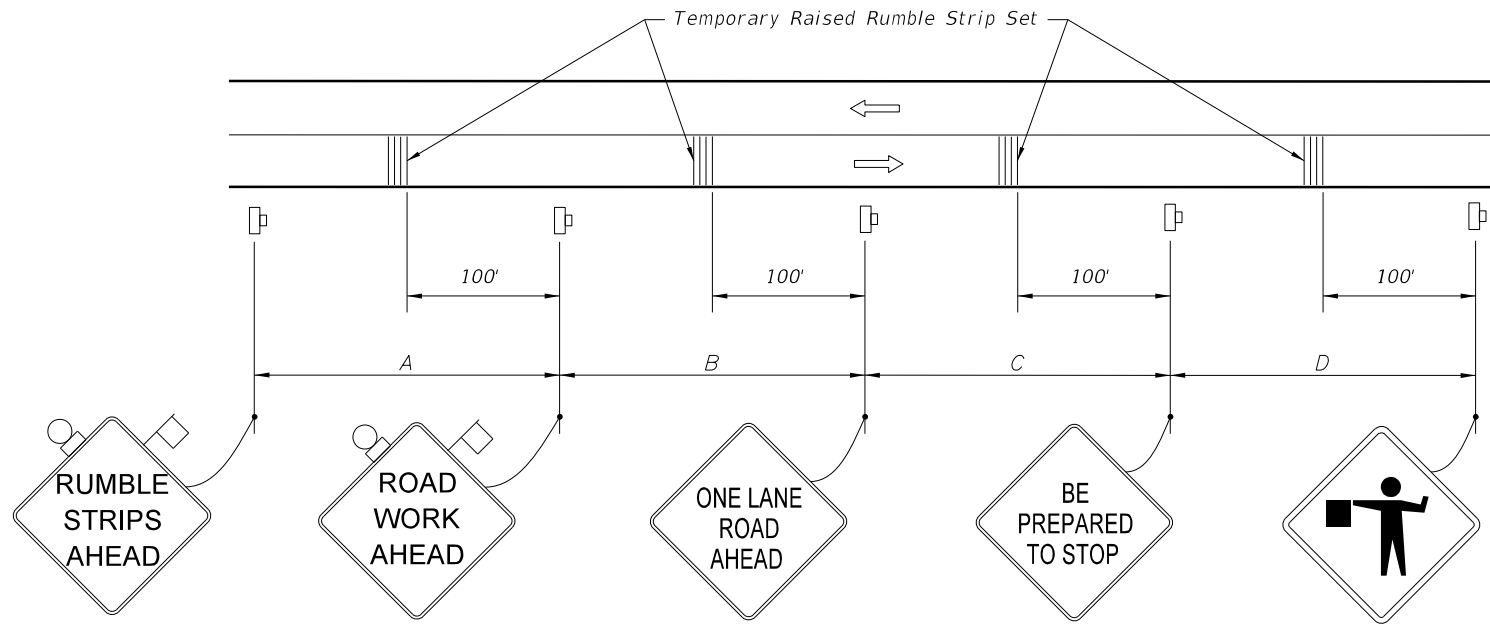
On projects with interspaced work activities, speed reductions should be located in proximity to those activities which merit a reduced speed, and not "blanketed" for the entire project. At the departure of such activities, the normal highway speed should be posted to give the motorist notice that normal speed can be resumed.

If the existing regulatory speed is to be used, consideration should be given to supplementing the existing signs when the construction work zone is between existing regulatory speed signs. For projects where the reduced speed conditions exist for greater than 1 mile in rural areas (non-interstate) and on rural or urban interstate, additional regulatory speed signs are to be placed at no more than 1 mile intervals. Engineering judgement should be used in placement of the additional signs. Locating these signs beyond ramp entrances and beyond major intersections are examples of proper placement. For urban situations (non-interstate), additional speed signs are to be placed at a maximum of 1000' apart.

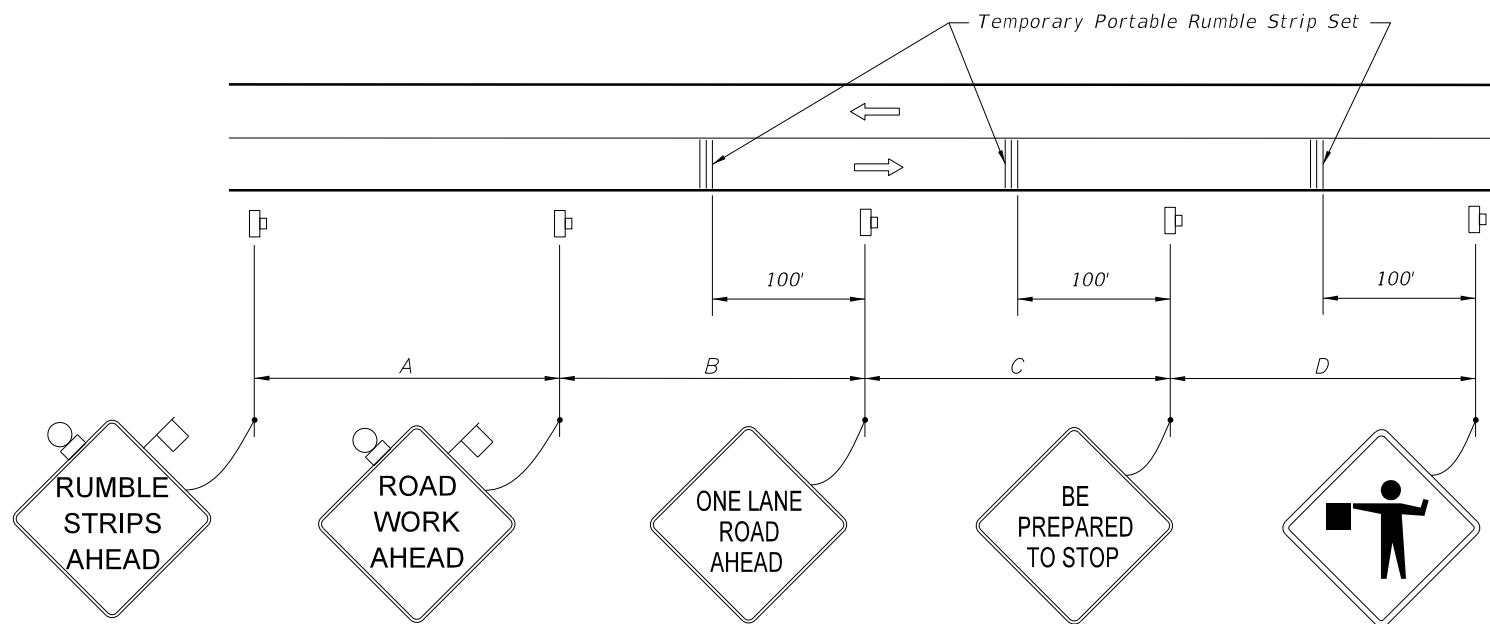
When field conditions warrant speed reductions different from those shown in the TCP the contractor may submit to the project engineer for approval by the Department, a signed and sealed study to justify the need for further reducing the posted speed, or, the engineer may request the District Traffic Operations Engineer (DTOE) to investigate the need. It will not be necessary for the DTOE to issue regulations for regulatory speeds in work zones due to the revised provisions of F.S. 316.07451(2) (b). Advisory Speed plates will be used at the option of the field engineer for temporary use while processing a request to change the regulatory speed specified in the plans when deemed necessary. Advisory speed plates cannot be used alone but must be placed below the construction warning sign for which the advisory speed is required.

For additional information refer to the FDOT Plans Preparation Manual, Volume I, Chapter 10.

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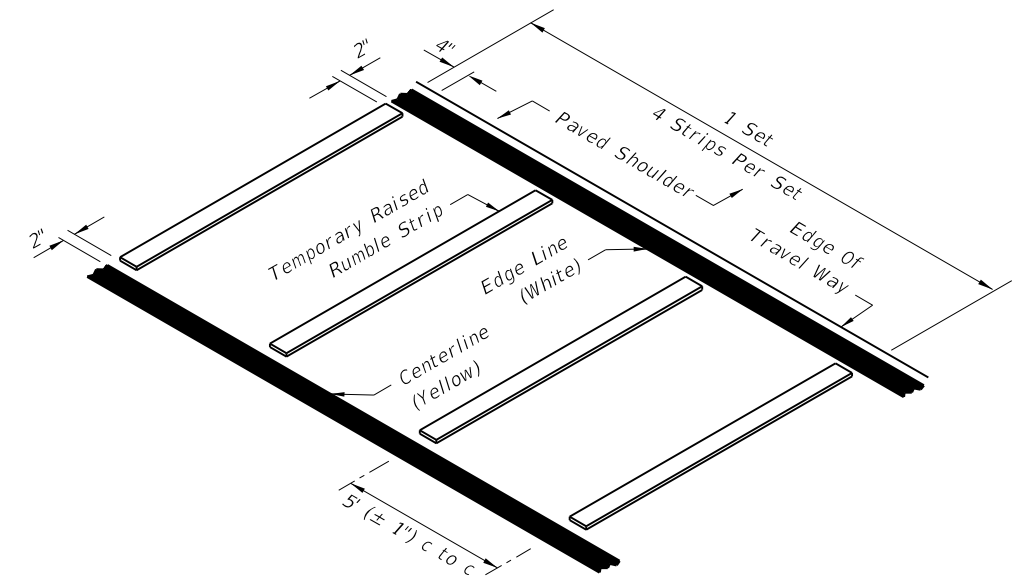


TYPICAL PLACEMENT OF TEMPORARY RAISED RUMBLE STRIPS

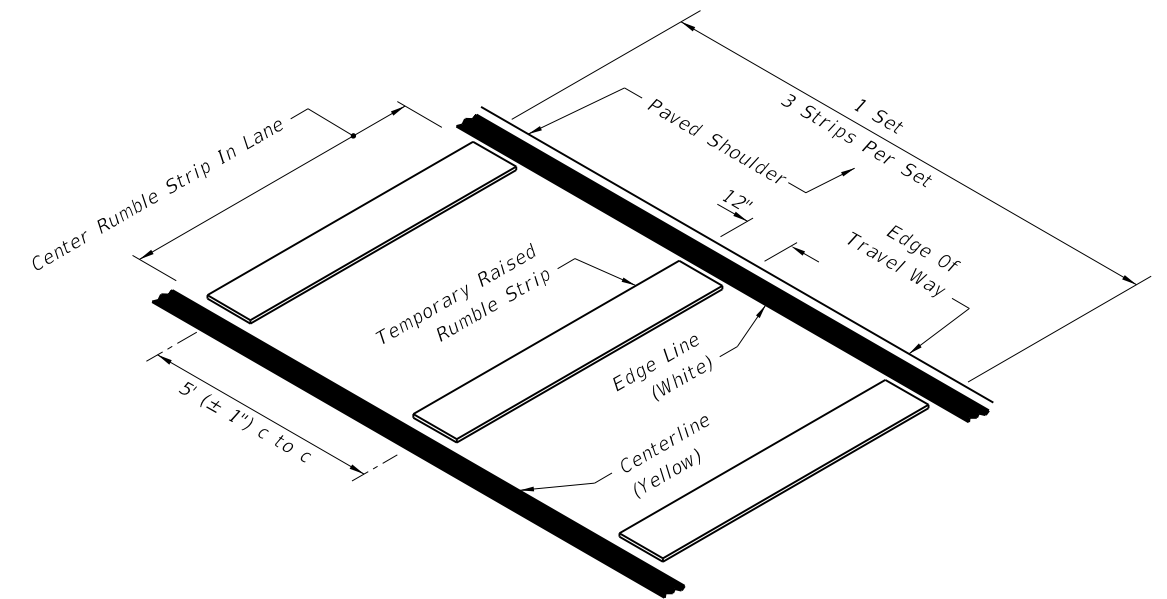


TYPICAL PLACEMENT OF TEMPORARY INTERNALLY BALLASTED RUMBLE STRIPS

DISTANCE BETWEEN SIGNS				
Speed (mph)	Spacing (ft.)			
	A	B	C	D
50	500	500	500	250
55 or greater	500	1640	1000	500



REMOVABLE POLYMER RUMBLE STRIP SET (PAVED SHOULDER SHOWN)



MOLDED ENGINEERED POLYMER RUMBLE STRIP SET (PAVED SHOULDER SHOWN)

GENERAL NOTES

1. Temporary raised rumble strips shall be required for all two lane, two way flagging operations with work zone speeds greater than 45 mph and work duration greater than one hour.
2. Temporary rumble strip sets are used to supplement a series of advanced warning signs and shall be installed and removed when the signs are installed and removed.
3. Remove the temporary rumble strips prior to removing the advance warning signs.

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## FLAGGER CONTROL

Where flaggers are used, a FLAGGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color contrast between the flagger's high-visibility safety apparel and equipment and the work area background.

### Hand-Signaling Devices

STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, should be 7 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflectorized.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

### Flagger Stations

Flagger stations shall be located far enough in advance of the work space so that approaching road users will have sufficient distance to stop before entering the work space. When used at nighttime, the flagger station shall be illuminated.

## SURVEY WORK ZONES

The SURVEY CREW AHEAD symbol or legend sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur, at the discretion of the Party Chief. Dual orange flags shall be used at all times to enhance the SURVEY CREW AHEAD sign, even with mesh signs.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign as called for on certain 600 Series Indexes should be omitted.

## Survey Between Active Traffic Lanes or Shared Left Turn Lanes

The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

- (A) A STAY IN YOUR LANE (MOT-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.
- (B) Elevation Surveys-Cones may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50' intervals along the break line throughout the work zone.
- (C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' towards the flow of traffic.
- (D) Horizontal Control-With traffic flow in opposite directions, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' in both directions towards the flow of traffic.

## SIGNS

### SIGN MATERIALS

Mesh signs may be used only for Daylight Operations.

Vinyl signs may be used for Day or Night Operations not to exceed 1 day except as noted in the standards.

Rigid or Lightweight sign panels may be used in accordance with the vendor drawing for the sign stand to which they are attached.

### INTERSECTING ROAD SIGNING

Signing for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. If work operations exceed 60 minutes, intersection leg signing will be no less than the ROAD WORK AHEAD sign.

### ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases other areas within their traffic control zones. Where such restraints or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedure applied:

- (A) For scheduled projects the engineer in responsible charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.
- (B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.
- (C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.
- (D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance works; between routine maintenance work, unscheduled work and/or permitted work; and, between unit controlled maintenance works and highway construction projects.

## SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING

Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

### SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS

Detours should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

### EXTENDED DISTANCE ADVANCE WARNING SIGN

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

### UTILITY WORK AHEAD SIGN

The UTILITY WORK AHEAD (W21-7) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

### LENGTH OF ROAD WORK SIGN

The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT \_\_\_\_\_ MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at begin construction points.

### SPEEDING FINES DOUBLED WHEN WORKERS PRESENT SIGN

The SPEEDING FINES DOUBLED WHEN WORKERS PRESENT sign should be installed on all projects, but may be omitted if the work operation is less than 1 day. The placement should be 500 feet beyond the ROAD WORK AHEAD sign or midway to the next sign whichever is less.

### GROOVED PAVEMENT AHEAD SIGN

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.


### END ROAD WORK SIGN

The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted where the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless other distance is called for in the plans. When other Construction or Maintenance Operations occur within 1 mile this sign should be omitted and signing coordinated in accordance with Index No. 600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

### PROJECT INFORMATION SIGN

The Project information sign shall be installed when called for in the plans.

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**GENERAL NOTES:**

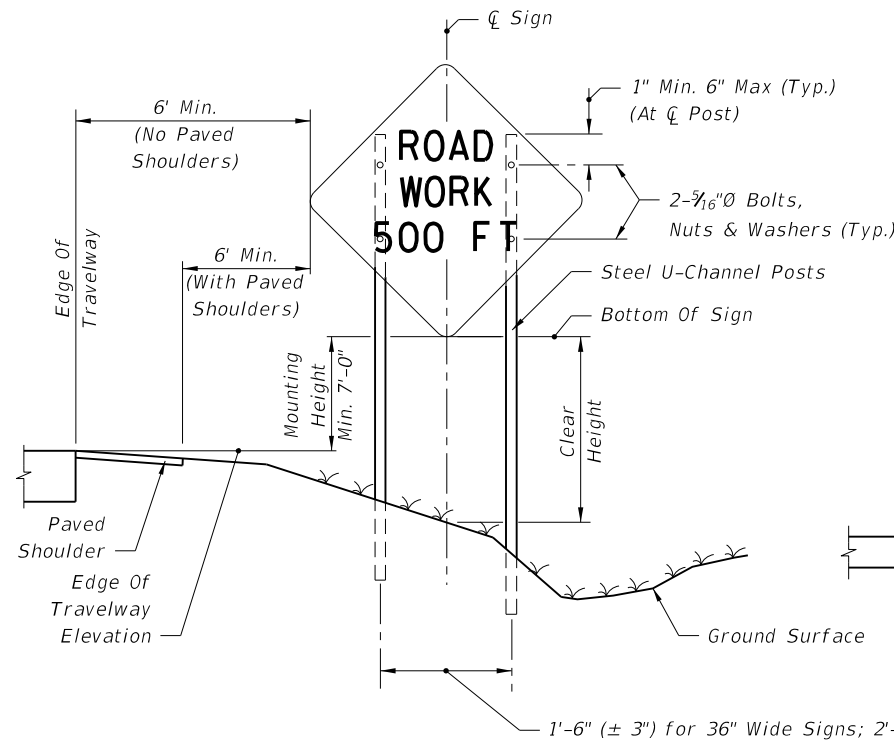
- All signs shall be post mounted when work operations exceed one day except for:
  - Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the APL.
  - Pedestrian advanced warning or regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.
  - Median barrier mounted signs per Index 11871.

**TEMPORARY SIGN SUPPORT NOTE:**

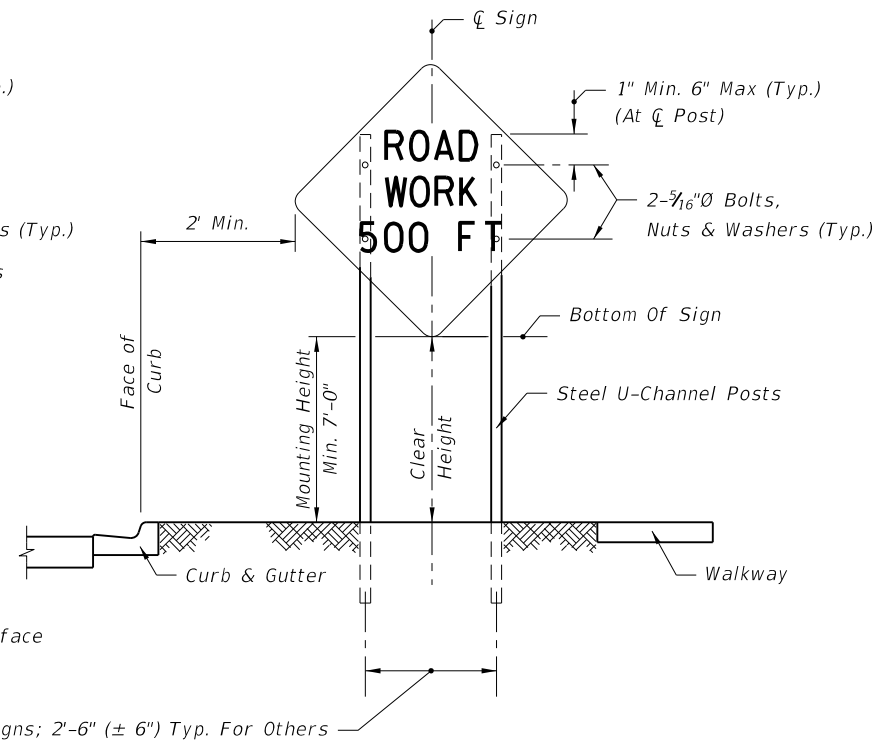
- Signs mounted on temporary supports or barricades, and barricade/sign combination shall be crashworthy in accordance with NCHRP 350 requirements and included on the Approved Products List (APL).

**POST MOUNTED SIGN NOTES:**

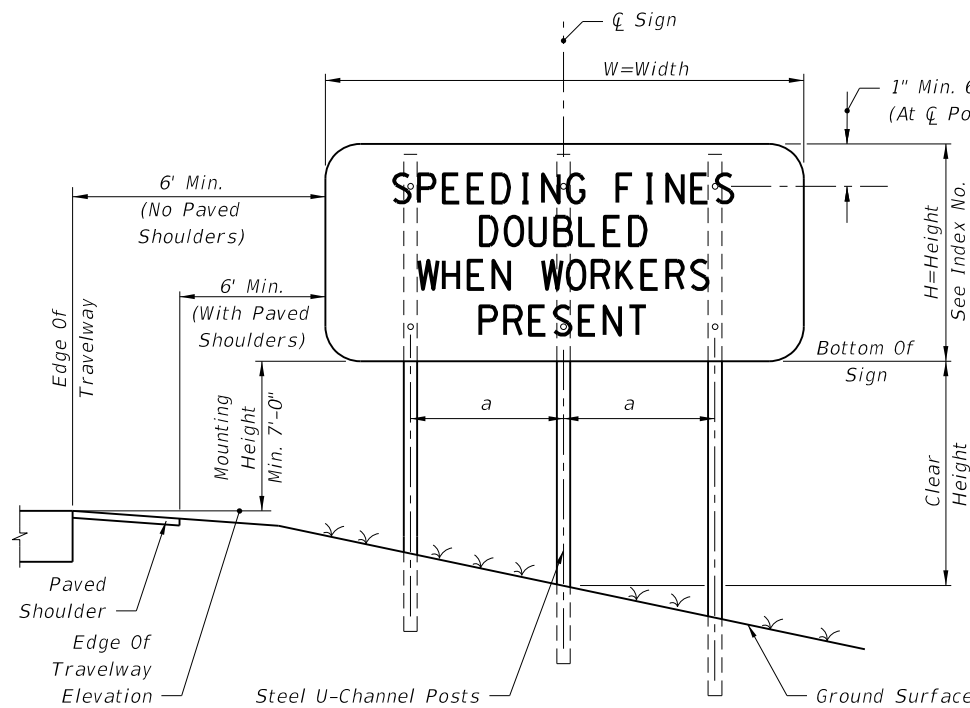
- Use only approved systems listed on the Department's Approved Products List (APL).
- Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.
- Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in<sup>3</sup> for 60 ksi steel, a minimum section modulus of 0.37 in<sup>3</sup> for 70 ksi steel, or a minimum section modulus of 0.34 in<sup>3</sup> for 80 ksi steel.
- Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.56 in<sup>3</sup> for 60 ksi steel, or a minimum section modulus of 0.47 in<sup>3</sup> for 70 ksi or 80 ksi steel.
- U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.
- Sign attachment bolts, washers, nuts and spacers shall conform with ASTM A307 or A 36.
- For diamond warning signs with supplement plaque (up to 5 ft<sup>2</sup> in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).
- Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- Install all posts plumb.
- The contractor may set posts in preformed holes to the specified depth with suitable backfill tamped securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer's detail shown on the APL.



**2 POST SIGN SUPPORT MOUNTING DETAILS  
(SINGLE POST SIMILAR)  
RURAL**



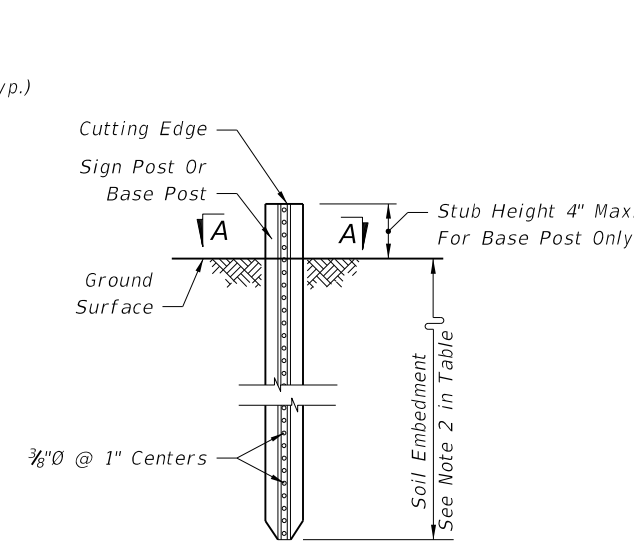
**2 POST SIGN SUPPORT MOUNTING DETAILS  
(SINGLE POST SIMILAR)  
URBAN**



**3 POST SIGN SUPPORT MOUNTING DETAILS**

Where  $W = 48''$ :  $a = 1' - 4\frac{1}{2}'' (\pm 1'')$   
 $W = 60''$ :  $a = 1' - 9'' (\pm 1'')$   
 $W = 72''$ :  $a = 2' - 1'' (\pm 1'')$

**WORK ZONE SIGN SUPPORTS**

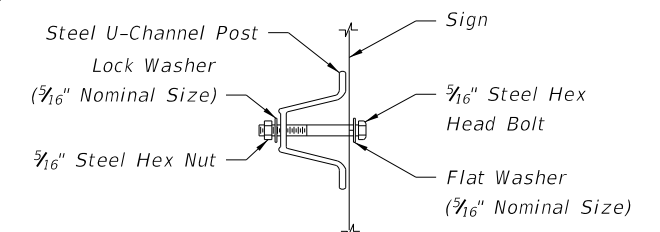


**TYPICAL FOUNDATION DETAIL**

See APL for post, splice and connection details.  
No bolts installed closer than 1" to cutting edge.



**SECTION A-A  
(SCHEMATIC)**



**SIGN ATTACHMENT DETAIL  
(WITHOUT Z-BRACKET)**

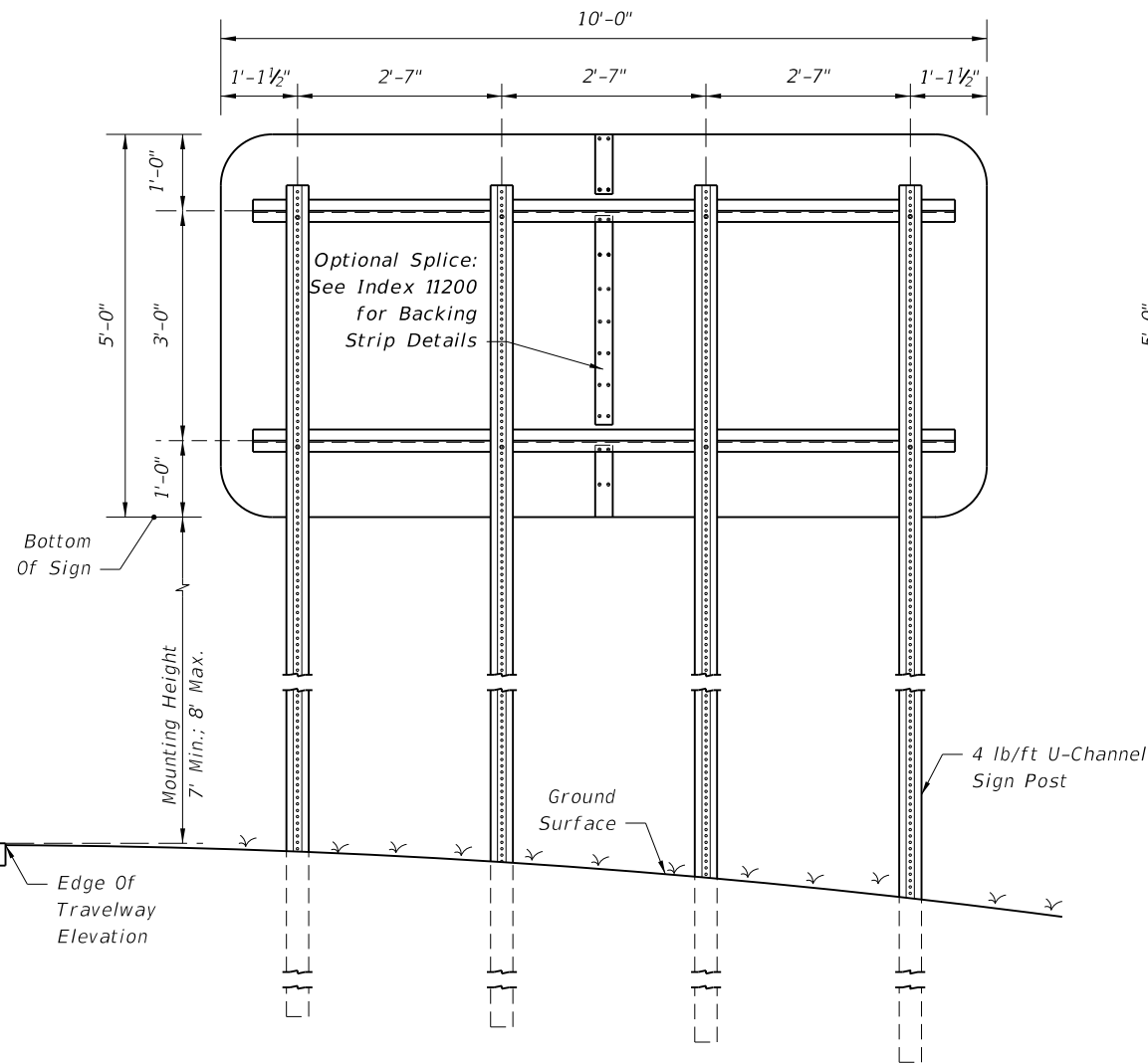
**POST AND FOUNDATION  
TABLE FOR  
WORK ZONE SIGNS**

SIGN SHAPE	SIGN SIZE (inches)	NUMBER OF STEEL U CHANNEL POSTS
Octagon	30x30	1
Triangle	36x36x36	1
	48x48x48	1
	60x60x60	2
Rectangle (W x H)	24x18	1
	24x30	1
	30x24	1
	36x18	1
	36x24	1
	48x18	1
	48x24	1
	36x48	2
	48x30	2
	48x36	2
	54x36	2
	48x60	3
60x54	3	
72x48	3	
120x60*	4*	
Square	30x30	1
	36x36	2
	48x48	2
Diamond (See Note 6)	48x48	2
Circle	36Ø	2

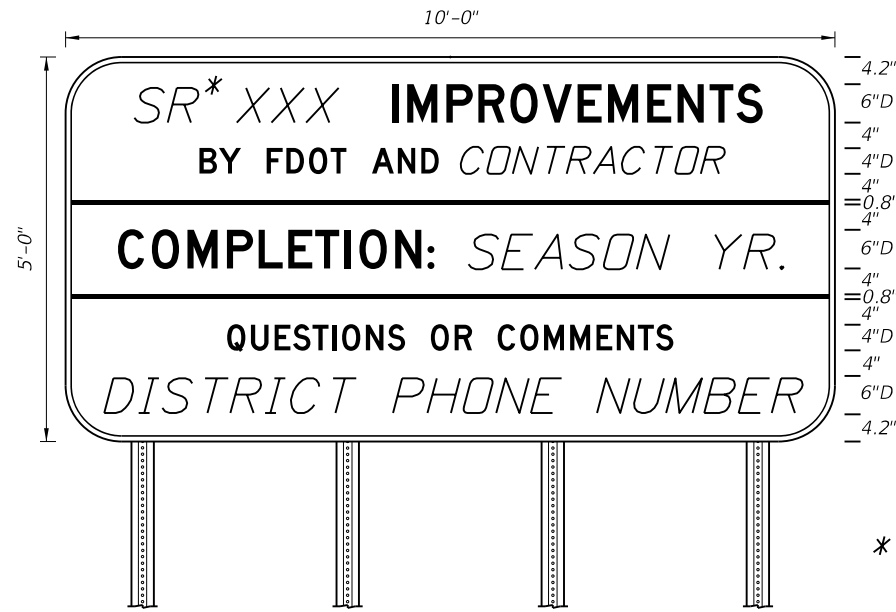
Notes For Table:

- Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
- \* Use 4 lb/ft U-channel sign post with a mounting height of 7' min. and 8' max. Attach sign panel using Z-bracket detail on Sheet 7.
- Minimum foundation depth is 4.0' for 3 lb/ft posts and 4.5' for 4 lb/ft posts.
- For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
- The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in note 3), asphalt roadway, shoulder pavement or soil under sidewalk.

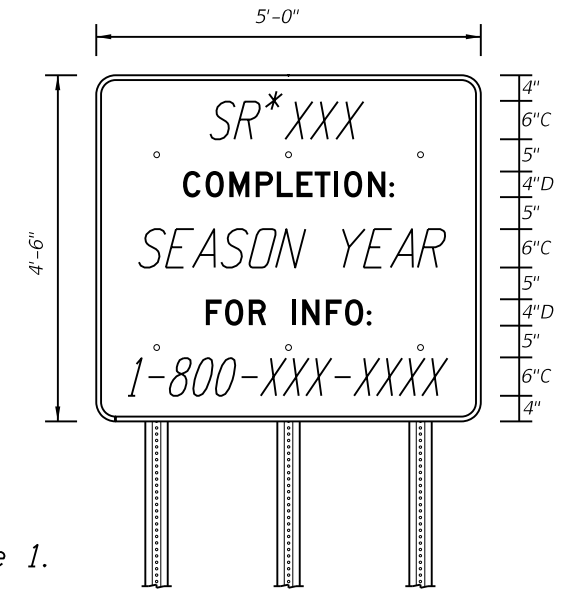
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4 POST SIGN SUPPORT MOUNTING DETAIL

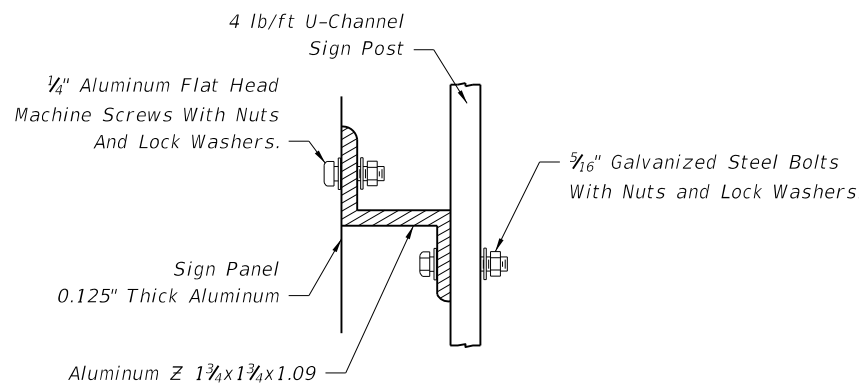


PROJECT INFORMATION SIGN DETAIL  
50 MPH OR GREATER  
Use SIGN ATTACHMENT DETAIL (WITH Z-BRACKET).

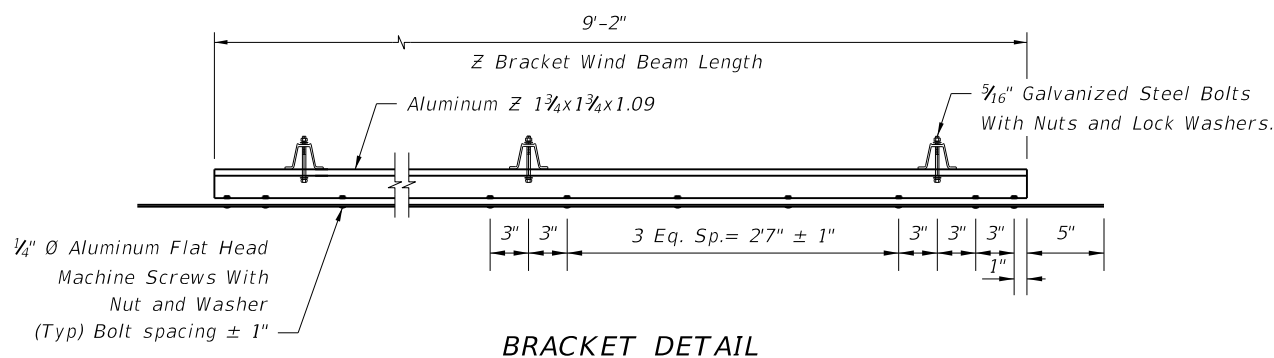


PROJECT INFORMATION SIGN DETAIL  
45 MPH OR LESS  
Use SIGN ATTACHMENT DETAIL (WITHOUT Z-BRACKET) On Sheet 6.

\*-See Note 1.



SIGN ATTACHMENT DETAIL (WITH Z-BRACKET)



BRACKET DETAIL

PROJECT INFORMATION SIGN NOTES:

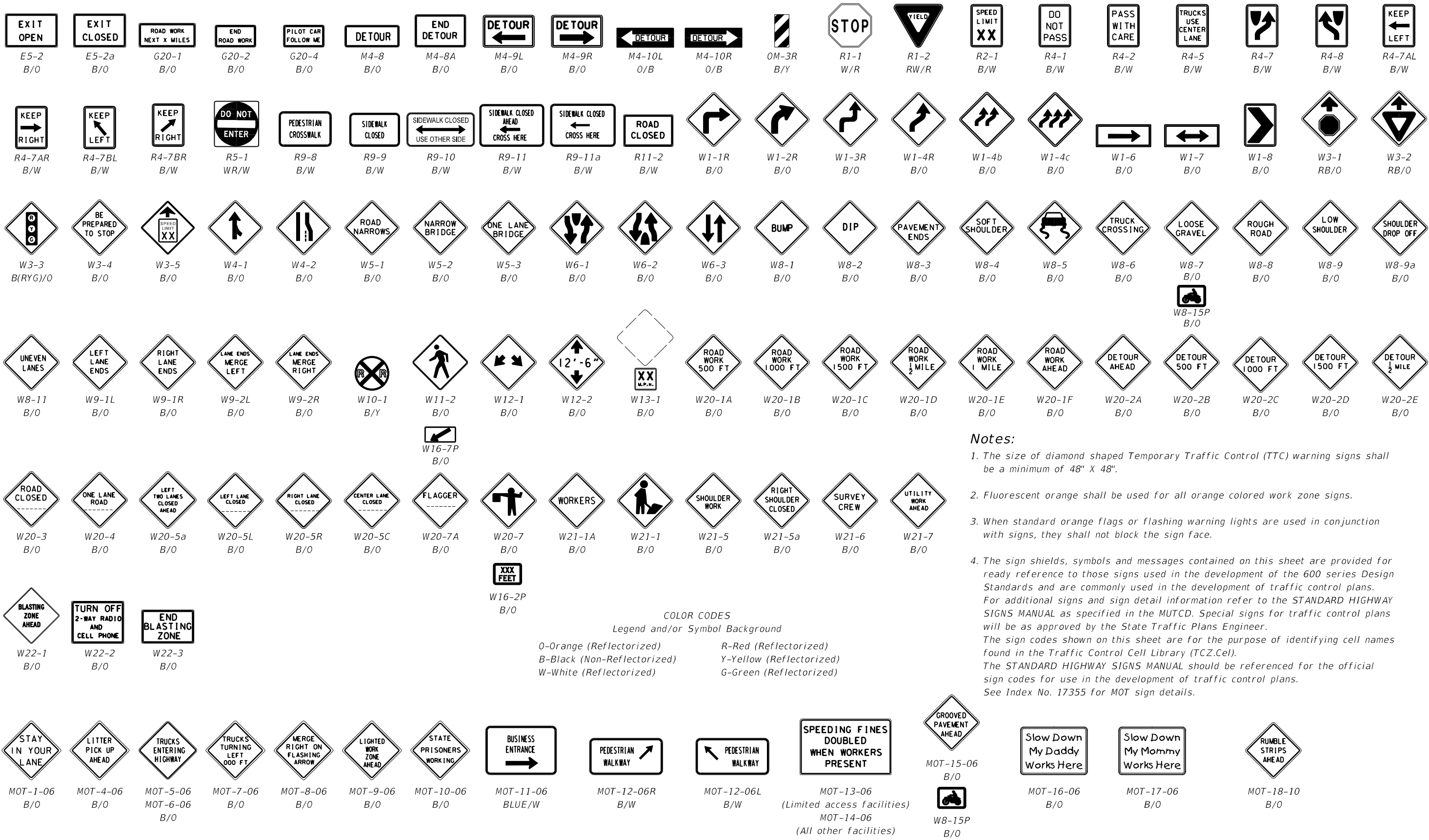
1. Road designation should be the most common designation (ie. I-Interstate, SR-State Road or US.)
2. See sheet 6 for POST AND FOUNDATIONS TABLE FOR WORK ZONE SIGNS.
3. See sheet 6 for TYPICAL FOUNDATION DETAILS.
4. Payment for Project Information Sign shall be included in Lump Sum MOT.

PROJECT INFORMATION SIGN

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**Notes:**

- The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" X 48".
- Fluorescent orange shall be used for all orange colored work zone signs.
- When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.
- The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 600 series Design Standards and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer. The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel). The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans. See Index No. 17355 for MOT sign details.

**COLOR CODES**  
 Legend and/or Symbol Background

O-Orange (Reflectorized)	R-Red (Reflectorized)
B-Black (Non-Reflectorized)	Y-Yellow (Reflectorized)
W-White (Reflectorized)	G-Green (Reflectorized)

**COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES**

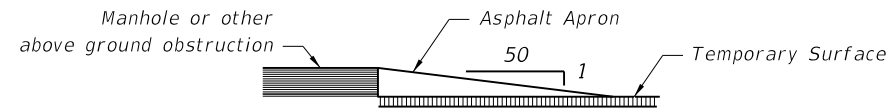
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LAST REVISION 01/01/11	REVISION	DESCRIPTION:	 <b>2015</b> <b>DESIGN STANDARDS</b>	<b>GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES</b>	INDEX NO. <b>600</b>	SHEET NO. <b>8 of 13</b>
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## MANHOLES/CROSSWALKS/JOINTS

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4" shall have a temporary asphalt apron constructed as shown in the diagram below.

All transverse joints that have a difference in elevation of 1" or more shall have a temporary asphalt apron constructed as shown in the diagram below.



The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

## TRUCK/TRAILER-MOUNTED ATTENUATORS

Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index Nos. 607 and 619. For short-term, stationary operations, see Part VI of the MUTCD.

## REMOVING PAVEMENT MARKINGS

Existing pavement markings that conflict with temporary work zone delineation shall be removed by any method approved by the Engineer, where operations exceed one daylight period. Painting over existing pavement markings with black paint or spraying with asphalt shall not be accepted as a substitute for removal or obliteration. Full pavement width overlays of either a structural or friction course are a positive means to achieve obliteration.

## SIGNALS

Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the TCP and be approved by the District Traffic Operations Engineer.

Maintain all existing actuated or traffic responsive mode signal operations for main and side street movements for the duration of the Contract and require restoration of any loss of detection within 12 hours. The contractor shall select only detection technology listed on the Department's Approved Products List (APL) and approved by the Engineer to restore detection capabilities.

## CHANNELIZING AND LIGHTING DEVICES

Channelizing and lighting devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and Index 600 requirements.

## CHANNELIZING AND LIGHTING DEVICE CONSISTENCY

Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

## WARNING LIGHTS

Warning lights shall be in accordance with the MUTCD except for the application limitations stipulated below:

### Flashing

Type A Low Intensity Flashing Warning Lights are to be mounted on barricades, drums, vertical panels or advance warning signs (except as noted below) and are intended to continually warn drivers that they are approaching or proceeding in a hazardous area. Flashing lights shall not be used to delineate the intended path of travel, and not placed with spacings that will form a continuous line to the drivers eye. The Type A light will be used to mark obstructions that are located adjacent to or in the intended travel way. Type A lights shall not be used in conjunction with the first advance warning sign nor the second such sign when used.

For post-mounted signs, Type B High Intensity Flashing Warning Lights shall be mounted on the first advanced warning sign and on the first and second advanced warning sign where two or more signs are used; this applies to all approaches to any work zone. The light shall be mounted on the channel post or on the upper edge of the sign nearest the traffic.

Type B High Intensity Flashing Warning Lights are not to be placed on temporary portable sign supports.

### Steady-Burn

Type C Steady-Burn Lights are to be mounted on barricades, drums, or vertical panels and used in combination with those devices to delineate the travel way on lane closures, lane changes, diversion curves and other similar conditions. Steady-burn lights are intended to be placed in a line to delineate the travel way through and around obstructions in the transition, buffer, work and termination areas of the traffic control zone. Their intended purpose is not for warning drivers that they are approaching or proceeding through a hazardous area.

## STANDARD ORANGE FLAG

For post-mounted signs a standard orange flag 18"x 18" (min.) shall be mounted on the first advanced warning sign and on the first and second advanced warning sign where two or more signs are used; this applies to all approaches to any work zone. The flag shall be mounted on the channel post or on the upper edge of the sign furthest from traffic.

Standard orange flags are not to be placed on temporary portable sign supports except to enhance the SURVEY CREW AHEAD sign where dual orange flags shall be used at all times.

## PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

The PCMS can be used to:

1. Supplement standard signing in construction or maintenance work zones.
2. Reinforce static advance warning messages.
3. Provide motorists with updated guidance information.

PCMS should be placed approx. 500 to 800 feet in advance of the work zone conflicts or 1.5 to 2 miles in advance of complex traffic control schemes which require new and/or unusual traffic maneuvers.

If PCMS are to be used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

For additional information refer to the FDOT Plans Preparation Manual, Volume I, Chapter 10.

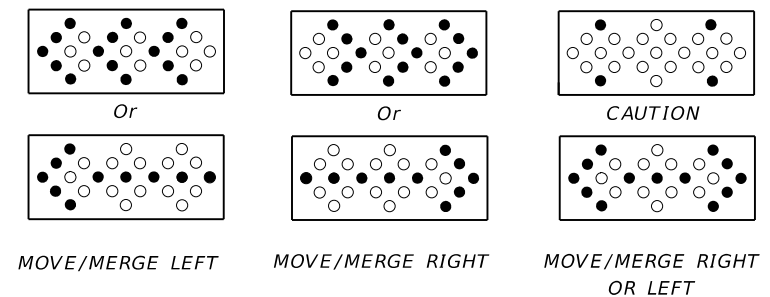
## ADVANCE WARNING ARROW BOARDS

An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.


A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.

When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.



● Minimum Required Lamps  
○ Additional Lamps Allowed

### MODES

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**DROP-OFF CONDITION NOTES**

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slopes (A:B) steeper than 1:4. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required. See Table 1.
3. Distance X is to be the maximum practical under project conditions.
4. For Clear Zone widths, see Index No. 600 sheet 3.
5. Distance from the travel lane to the barrier or warning device should be maximum practical for project conditions.
6. For Conditions 1 and 3 only, any drop-off condition that is created and restored within the same work period will not be subject to the use of barriers; however, warning devices will be required.
7. When permanent curb heights are  $\geq 6"$ , no warning device will be required. For curb heights  $< 6"$ , see Table 1.
8. Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:
 

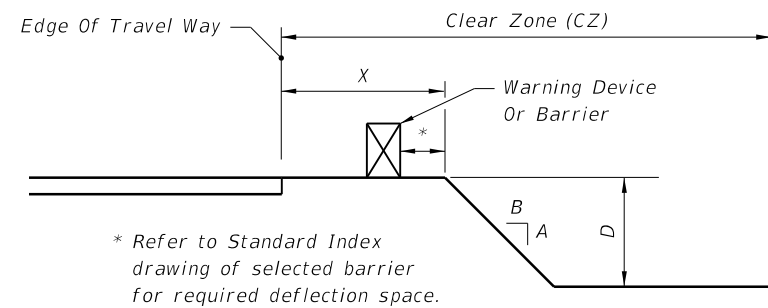
Index No.	Description
400	Temporary guardrail and end anchorage
412	Temporary low profile barrier
414	Type K temporary concrete barrier
415	Temporary concrete barrier

 For other types of temporary barriers see the APL

**Table 1  
Drop-off Protection Requirements**

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Barrier (See Note 6)
2	12-CZ	> 3 to $\leq 5$	Warning Device
3	0-CZ	> 5	Barrier (See Note 6)
4	Removal of Bridge/Retaining Wall Barrier		Barrier
5	Removal of portions of Bridge Deck		Barrier

1. This Table is for all speeds.
2. See Drop-off Condition Notes.



\* Refer to Standard Index drawing of selected barrier for required deflection space.

**WARNING DEVICE NOTES**

1. The following are defined as acceptable warning devices:
  - a. Vertical panel
  - b. Type I Or Type II barricades
  - c. Drum
  - d. Cone (where allowed)
  - e. Tubular marker (where allowed)
2. Warning device spacing shall be as shown in Table 2.

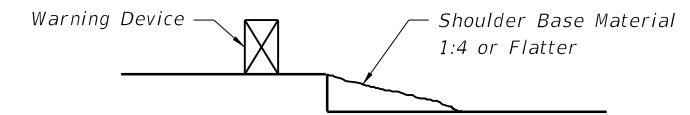
**Table 2  
Warning Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

**PEDESTRIAN AND/OR BICYCLIST WAY  
DROP-OFF CONDITION NOTES**

1. A pedestrian and/or bicyclist way drop-off is defined as:
  - a. a drop in elevation greater than 10 inches that is closer than 2 feet from the edge of the pedestrian or bicyclist way
  - b. a slope steeper than 1:2 that begins closer than 2 feet from the edge of the pedestrian or bicyclist way when the total drop-off is greater than 60 inches.
2. Any drop-off adjacent to a pedestrian or bicyclist way shall be protected with warning devices, temporary barrier wall or approved handrail.

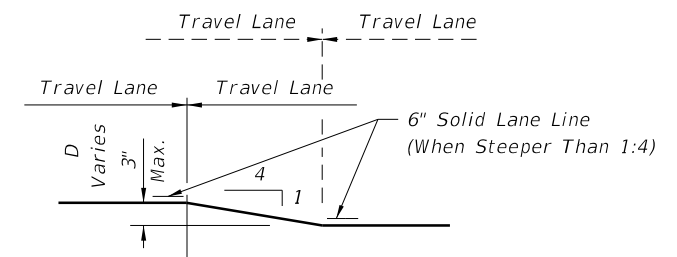
**SHOULDER TREATMENT**



**NOTES**

1. Shoulder treatment may be used in lieu of barrier. Warning devices are required.
2. Daily inspections shall be conducted to assure that no erosion, excessive slopes, rutting, or other adverse conditions exist. Any deficiencies shall be repaired immediately.
3. Compensation for the placement and removal of the material required for the shoulder treatment shall be included in the cost for Maintenance Of Traffic, LS. Use of shoulder treatment in lieu of a barrier is not eligible for CSIP consideration.

**TRAVEL LANE TREATMENT FOR  
MILLING OR RESURFACING**



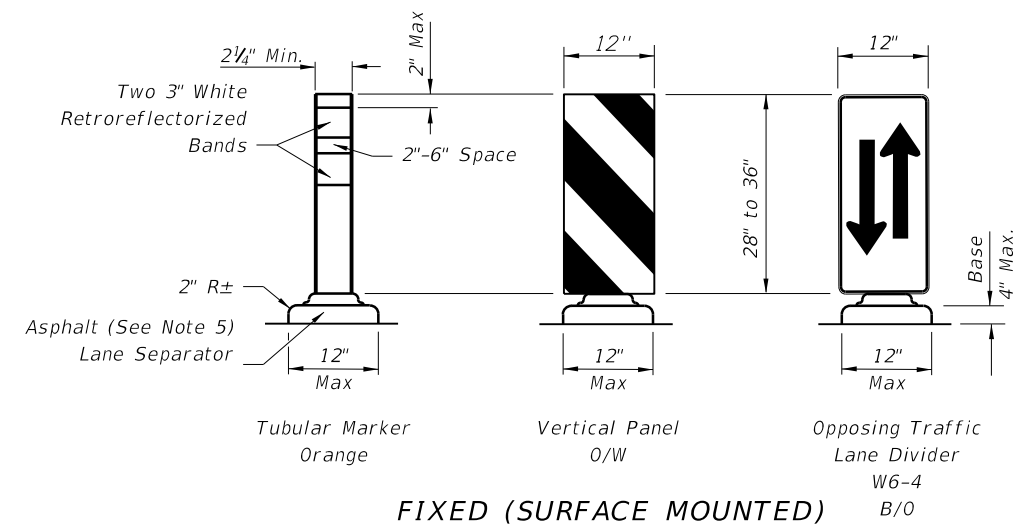
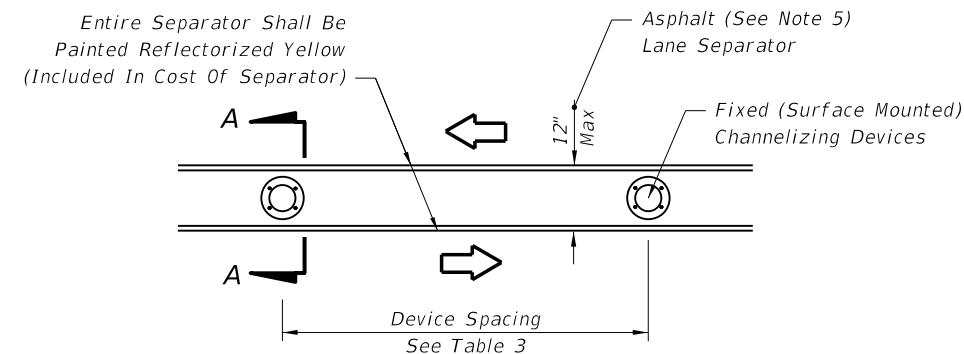
**NOTES**

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 1/2 mile maximum.
3. If D is 1 1/2" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.

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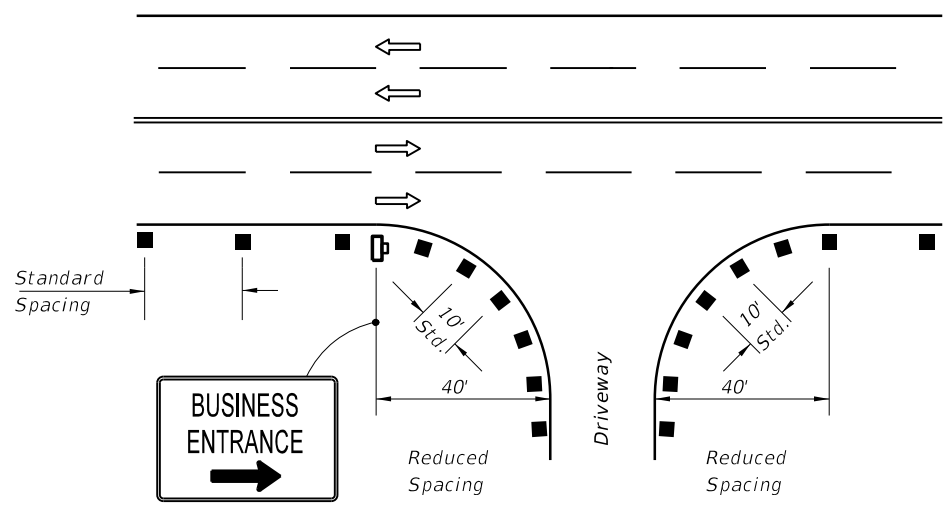
**DROPOFFS IN WORK ZONES**

Speed (mph)	Max. Distance Between Devices (ft.)			
	Tubular Markers		Vertical Panels or Opposing Traffic Lane Divider	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100



FIXED (SURFACE MOUNTED) CHANNELIZING DEVICES

SECTION AA



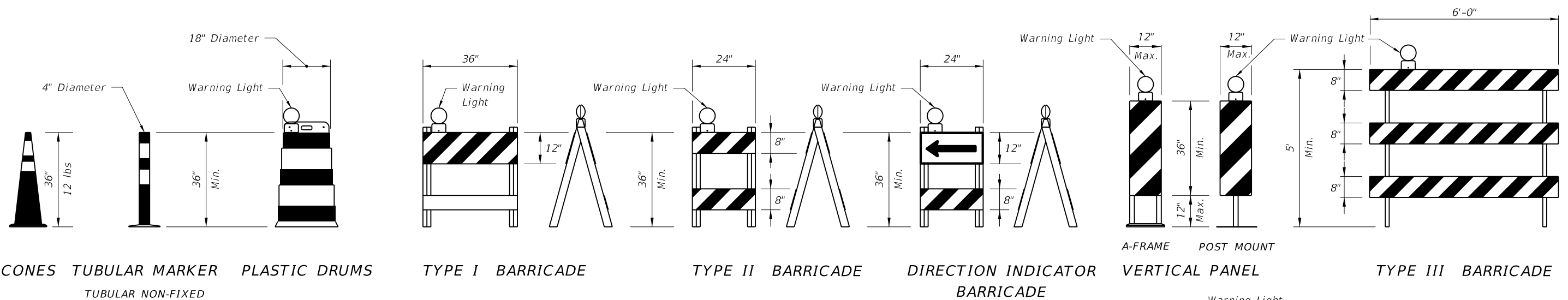
1. For single business entrances, place one 24" x 36" business sign for each driveway entrance affected. Signs shall show specific business names. Logos may be provided by business owners. Standard BUSINESS ENTRANCE sign in Index 17355 may be used when approved by the Engineer.
2. When several businesses share a common driveway entrance, place one 24" x 36" standard BUSINESS ENTRANCE sign according with Index 17355 at the common driveway entrance.
3. Channelizing devices shall be placed at a reduced spacing on each side of the driveway entrance, but shall not restrict sight distance for the driveway users.
4. Business entrance signs are intended to guide motorist to business entrances moved/modified or disturbed during construction projects. Business entrance signs are not required where there is minimal disruption to business driveways which is often the case with resurfacing type projects.

1. Temporary lane separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels (W6-4) shall only be used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation. Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used. The connection between the channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.
2. ReflectORIZED materials shall have a smooth sealed outer surface which will display the same approximate color day and night. Furnish channelizing devices having retroreflective sheeting meeting the requirements of Section 990.
3. 12" openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25' in areas with grades of 1% or less or 50' in areas with grades over 1% as directed by the Engineer.
4. Tapered ends shall be used at the beginning and end of each run of the temporary lane separator to form a gradual increase in height from the pavement level to the top of the temporary lane separator.
5. The Contractor has the option of using portable temporary lane separators containing fixed channelizing devices in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet. The portable temporary lane separator shall come in portable sections that can be connected to maintain continuous alignment between the separate curb sections. Each temporary lane separator section shall be 36 inches to 48 inches in total length. Portable temporary lane separators shall duplicate the color of the pavement marking. Portable temporary lane separators shall be one of those listed on the Qualified Products List.
6. Any damage to existing pavement caused by the removal of temporary lane separator shall be satisfactorily repaired and the cost of such repairs are to be included in the cost of Maintenance of Traffic, LS.

PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE

TEMPORARY LANE SEPARATOR

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**CHANNELIZING AND LIGHTING DEVICE NOTES**

1. The details shown on this sheet are for the following purposes:

- (a) For ease of identification and
- (b) To provide information that supplements or supersedes that provided by the MUTCD.

2. The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.

3. No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the APL.

4. During hours of darkness, warning lights shall be used on LCDs, drums, vertical panels, Type I, Type II, Type III, and direction indicator barricades in accordance with 'Warning Lights' in Index No. 600.

5. Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.

6. The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.

7. The splicing of sheeting is not permitted on either channelizing devices or MOT signs.

8. For rails less than 3'-0" long, 4" stripes shall be used.

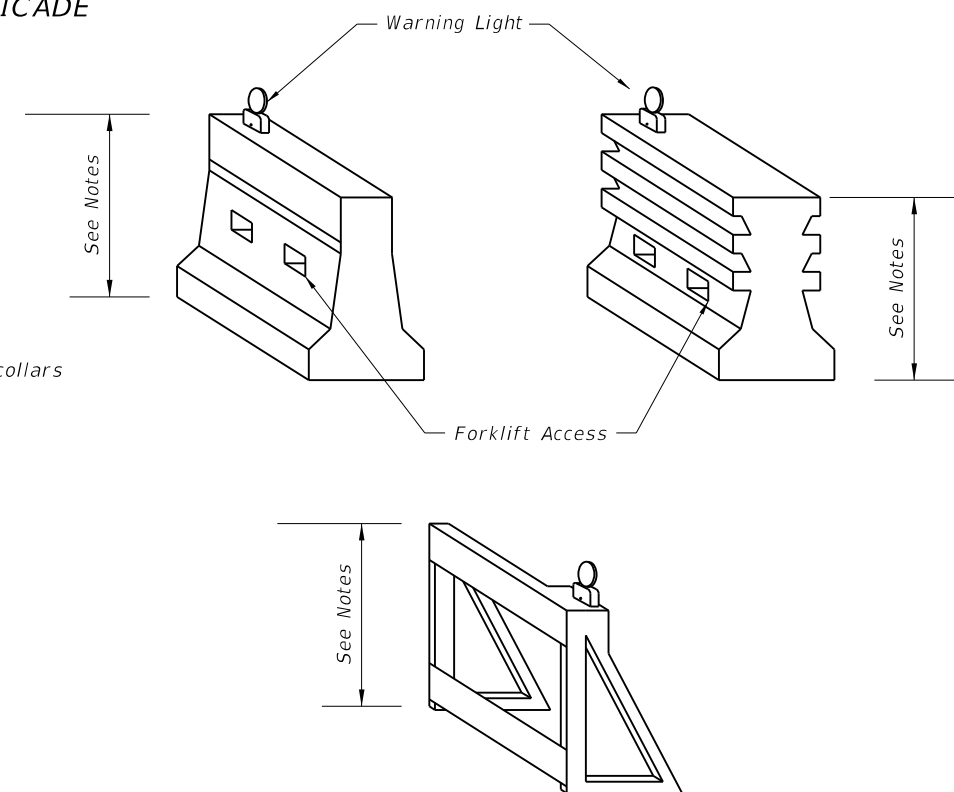
9. Cones shall:

- a. Be used only in active work zones where workers are present.
- b. Not exceed 2 miles in length of use at any one time.
- c. Be reflectorized as per the MUTCD with Department approved reflective collars when used at night.

10. Spacing for longitudinal channelizing devices when placed singly shall be the same as Type I or Type II barricades or drums.

11. Vehicular longitudinal channelizing devices shall not exceed 36" in height. For vehicular longitudinal channelizing devices (LCDs) less than 32" in height, the LCD shall be supplemented with approved fixed (surface mounted) channelizing devices (tubular markers, vertical panels, etc.) along the run of the LCD, at the ends, at 50' centers on tangents, and 25' centers on radii. The cost of the fixed supplemented channelizing devices shall be included in the cost of the LCD. LCDs less than 32" in height shall not be used for speeds greater than 45 mph.

12. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have smooth connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.

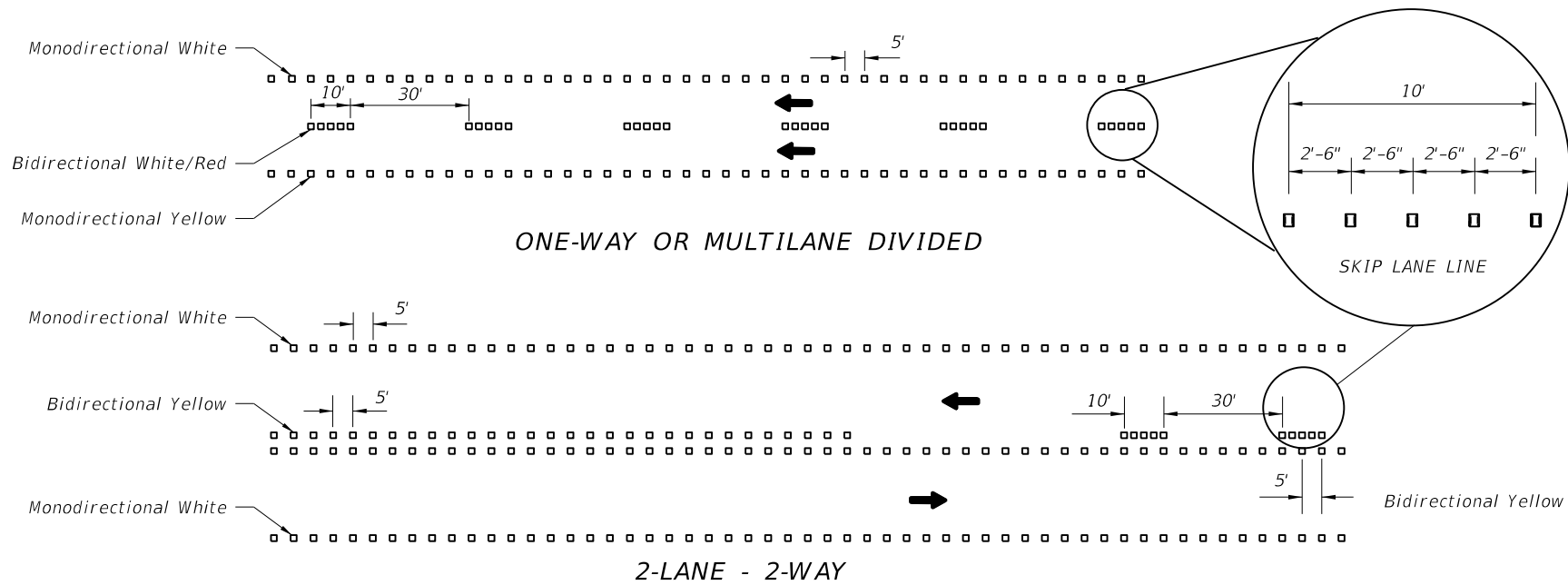


**LONGITUDINAL CHANNELIZING DEVICE**

**IDENTIFICATIONS - CHANNELIZING AND LIGHTING DEVICES**

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**RPM CLASS**

**APPLICATION FOR REFLECTIVE PAVEMENT MARKERS**

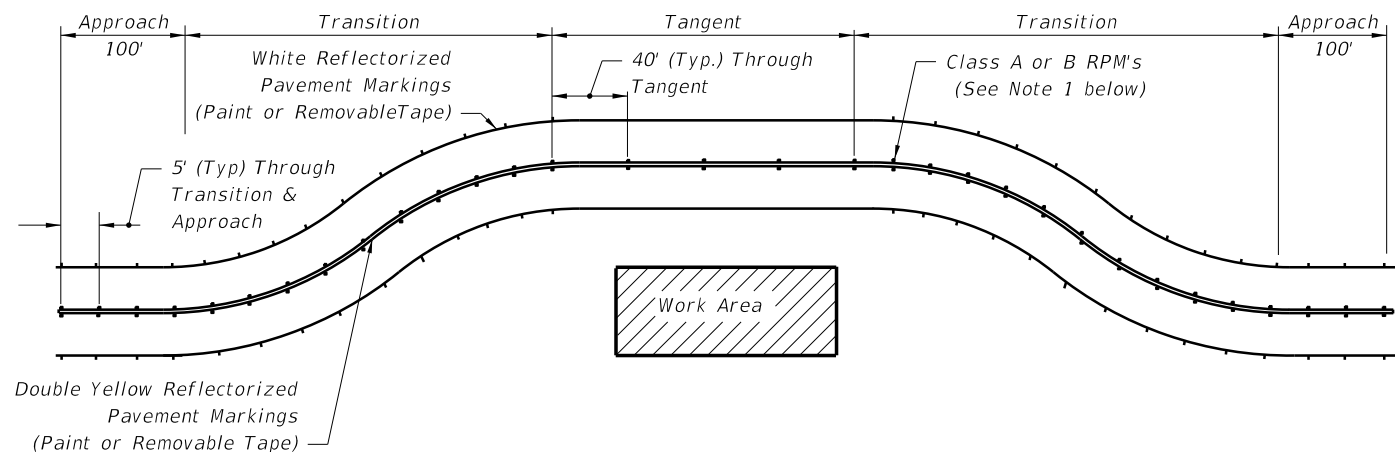
- A Work Zone Applications Only, For Traffic And Nontraffic Areas.
- B Permanent Application In Traffic And Nontraffic Areas Or Can Be Used In Work Zone Applications For Traffic And Nontraffic Areas.

**TEMPORARY SUBSTITUTION OF RPM'S FOR PAINT OR REMOVABLE TAPE**

1. Paint or removable tape are the required work zone markings and shall be placed in accordance with the plans and specifications. If these work zone markings can not be placed due to weather restrictions identified in the appropriate specification, temporary substitution of RPM's for work zone markings will be allowed until the weather condition permits the placement of appropriate work zone marking. Temporary substitution of RPM's for work zone markings will be allowed for equipment malfunction, placement of the appropriate work zone marking shall be made within 3 days, or sooner if possible. When RPM's are used as a temporary substitution for work zone markings the following shall apply:
  - a. Lane widths identified in the plans must be maintained. Placement of RPM's should consider where work zone markings will be placed as soon as conditions allow. If the RPM's can not be placed so that the lane width is maintained after the placement of the work zone markings, the conflicting RPM's must be removed.
  - b. The color of the RPM body and the reflective face shall conform to the color of the marking for which they substitute.
  - c. In work zones, CLASS A or B RPM's may be used to form lane lines, edge lines and temporary gore areas as a temporary substitute for paint or removable tape at the spacing shown above.

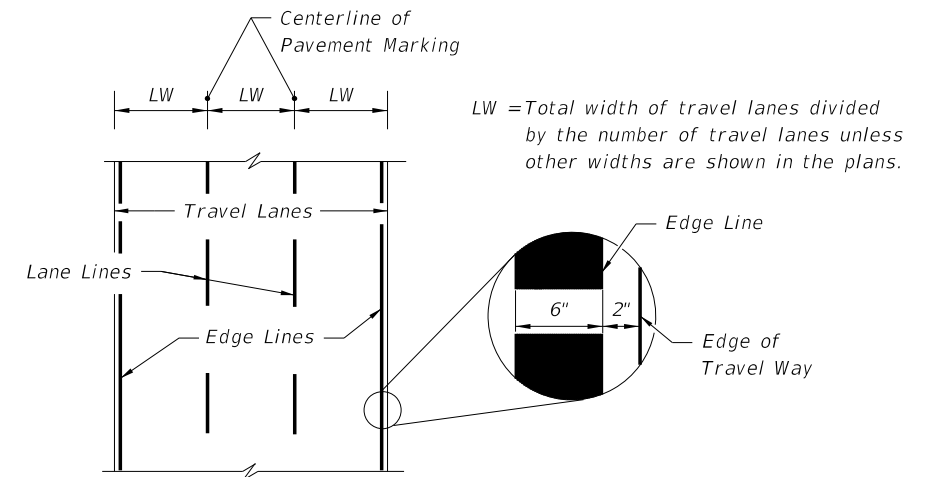
**NOTES FOR REFLECTIVE PAVEMENT MARKERS**

1. The color of the raised pavement marker under both day and night conditions shall conform to the color of the marking for which they serve as a positioning guide, or for which they supplement or substitute.
2. To provide contrast on concrete pavement, or light asphalt, the five (5) white RPM's shall be followed by five black RPM's. The spacing between RPM's shall be 2'-6". Black RPM's will not be required for contrast with yellow RPM's.
3. RPM's used to supplement lane lines are to be paid for as Reflective Pavement Marker (Temporary), EA. RPM's used as a temporary substitute for paint or removable tape due to weather restrictions are to be paid for as Reflective Pavement Marker (Temporary), EA. RPM's used as a temporary substitute for paint or removable tape due to equipment malfunction are to be placed at the Contractor's expense.



**USE OF RPMS TO SUPPLEMENT PAINT OR REMOVABLE TAPE IN WORK ZONES**

1. RPM's shall be installed as a supplement to:
  - a. All lane lines.
  - b. Edge lines in transition & approach areas.
  - c. Edge lines of gore areas.
2. Placement of RPM's should be as shown in Index No. 17352 with the following exceptions:
  - RPM's shall be placed at 5 feet center to center in approach and transition areas.

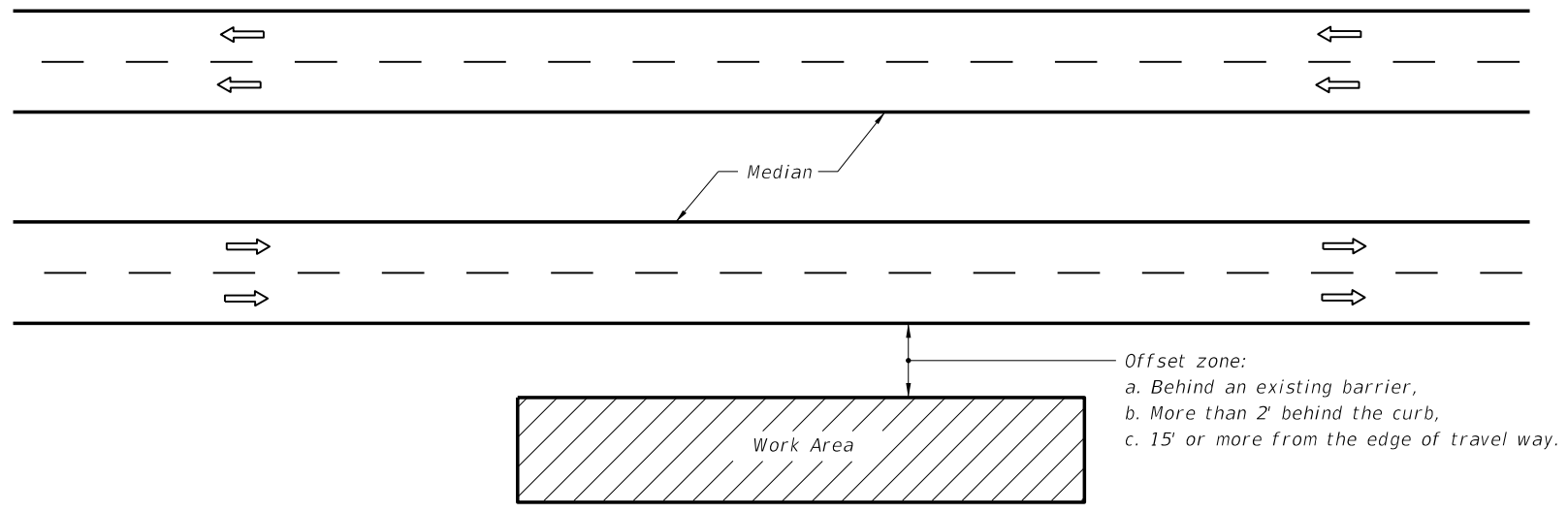


**PLACEMENT OF PAVEMENT MARKINGS**

**PAVEMENT MARKINGS**

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
LAST REVISION 07/01/14	REVISION	DESCRIPTION:	 2015 DESIGN STANDARDS	<b>GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES</b>	INDEX NO. 600	SHEET NO. 13 of 13
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**GENERAL NOTES**

1. If the work operation (excluding establishing and terminating the work area), requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in accordance with Index No. 612.
2. No special signing is required.
3. This index also applies when work is being performed on a multilane undivided highway.
4. This index also applies to work performed in the median behind an existing barrier or more than 15' from the edge of travel way, both roadways. Work performed in the median behind curb and gutter shall be in accordance with Index No. 612.
5. When a side road intersects the highway within the work area, additional traffic control devices shall be placed in accordance with other applicable TCZ Indexes.
6. When construction activities encroach on a sidewalk, refer to Index No. 660.
7. For general TCZ requirements and additional information, refer to Index No. 600.


**SYMBOLS**

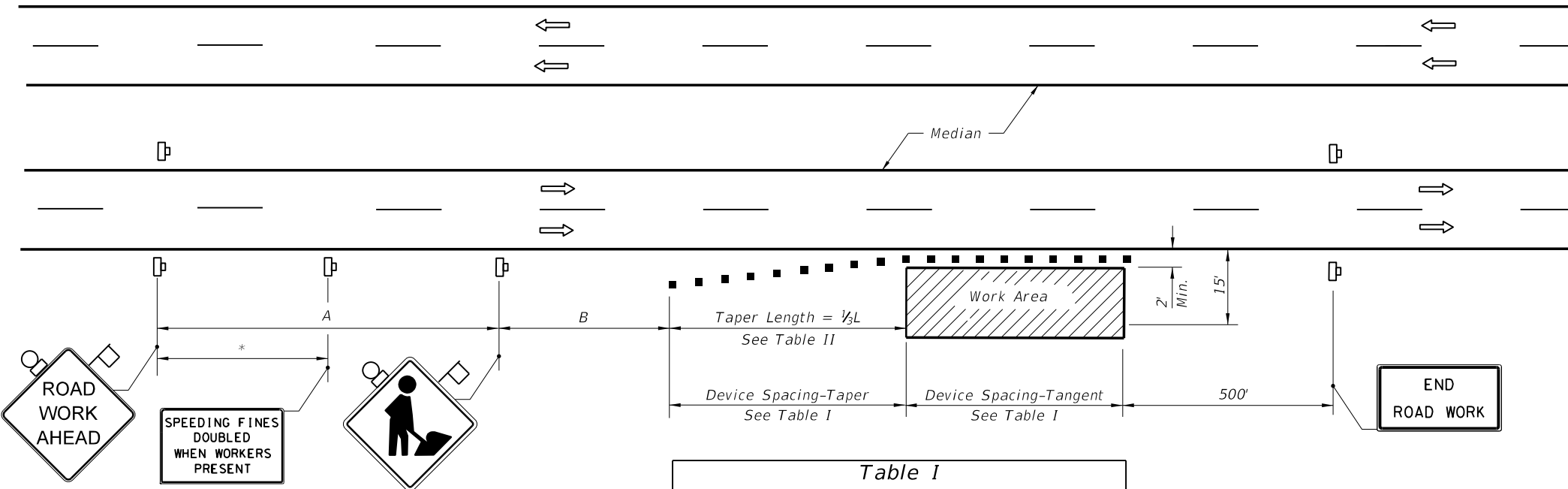
-  Work Area
-  Lane Identification + Direction of Traffic

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE BEHIND AN EXISTING BARRIER, MORE THAN 2' BEHIND THE CURB, OR 15' OR MORE FROM THE EDGE OF TRAVEL WAY.

5/21/2014 7:58:52 AM

LAST REVISION 07/01/05	REVISION	DESCRIPTION:	 <b>2015 DESIGN STANDARDS</b>	<b>MULTILANE WORK OUTSIDE SHOULDER</b>	INDEX NO. <b>611</b>	SHEET NO. <b>1 of 1</b>
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Speed	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Speed (mph)	1/3 L (ft.)			Notes
	8' Shldr.	10' Shldr.	12' Shldr.	
25	28	35	42	$L = \frac{WS^2}{60}$
30	40	50	60	
35	55	68	82	
40	72	90	107	
45	120	150	180	$L = WS$
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width.

1/3 L = Length of shoulder taper in feet

W = Width of total shoulder in feet (combined paved and unpaved width)

S = Posted speed limit (mph)

### GENERAL NOTES

1. If the work operation encroaches on the through traffic lanes or when four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), a flagger shall be provided and a FLAGGER sign shall be substituted for the WORKERS sign. The flagger shall be positioned at the point of vehicle entry or departure from the work area.
2. This TCZ plan also applies to work performed in the median more than 2' but less than 15' from the edge of travelway.
3. When work is being performed on a multilane undivided roadway the signs normally mounted in the median (as shown) shall be omitted.
4. WORKERS signs to be removed or fully covered when no work is being performed.
5. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign.
6. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
7. For general TCZ requirements and additional information, refer to Index No. 600.

### DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
  - a. Work operations are 60 minutes or less.
  - b. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

### SYMBOLS

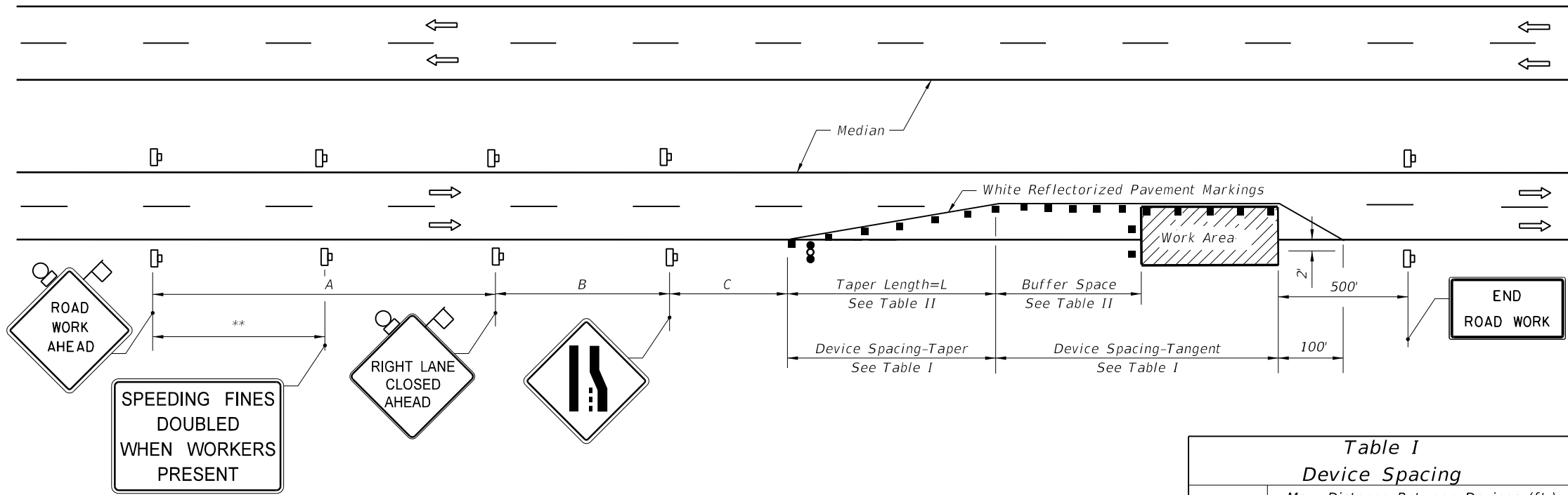
- Work Area
- Sign With 18" X 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic

### CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

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**Table II  
Buffer Space and Taper Length**

Speed (mph)	Buffer Space (ft.)	Taper Length (12' Lateral Transition)	
		Dist. (ft.)	Notes (Merge)
25	155	125	$L = \frac{WS^2}{60}$
30	200	180	
35	250	245	
40	305	320	
45	360	540	$L = WS$
50	425	600	
55	495	660	
60	570	720	
65	645	780	
70	730	840	

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use Where:

L = Length of taper in feet  
W = Width of lateral transition in feet  
S = Posted speed limit (mph)

**Table I  
Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

**DURATION NOTES**

- Temporary white edgeline may be omitted for work operations less than 3 consecutive calendar days.
- For work operations up to approximately 15 minutes, signs, channelizing devices, arrow board, and buffer space may be omitted if all of the following conditions are met:
  - Speed limit is 45 mph or less.
  - No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space and the taper length combined.
  - Volume and complexity of the roadway has been considered.
  - The closed lane is occupied by a class 5 or larger, medium duty truck(s) with a minimum gross weight vehicle rating (GWVR) of 16,001 lb with high-intensity, rotating, flashing, oscillating, or strobe lights mounted above the cab height and operating.
- For work operations up to 60 minutes, arrow board and buffer space may be omitted if conditions a, b, and c in DURATION NOTE 2 are met, and vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCR OACH ON THE LANE ADJACENT TO EITHER SHOULDER AND THE AREA 2' OUTSIDE THE EDGE OF TRAVEL WAY.

**DISTANCE BETWEEN SIGNS**

Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350
50 mph	500	500	500
*55 mph or greater	2640	1640	1000

\* The ROAD WORK 1 MILE sign may be used as an alternate to the ROAD WORK AHEAD sign and the RIGHT LANE CLOSED 1/2 MILE sign may be used as an alternate to the RIGHT LANE CLOSED AHEAD sign.

\*\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**SYMBOLS**

- Work Area
- Sign With 18"x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board

**GENERAL NOTES**

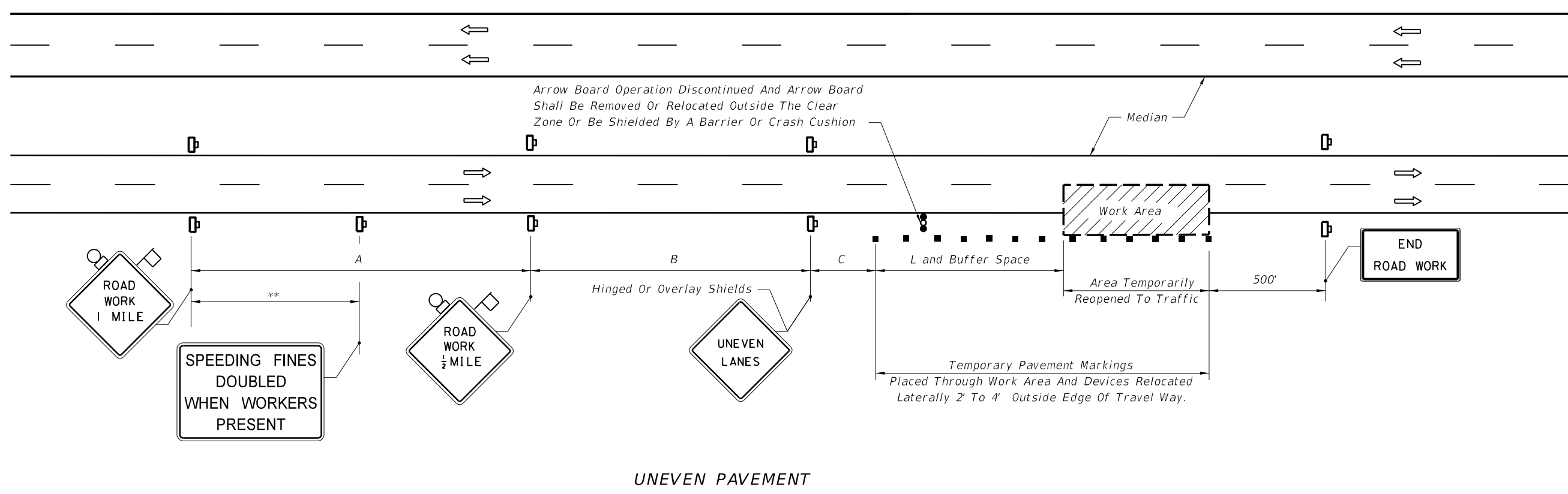
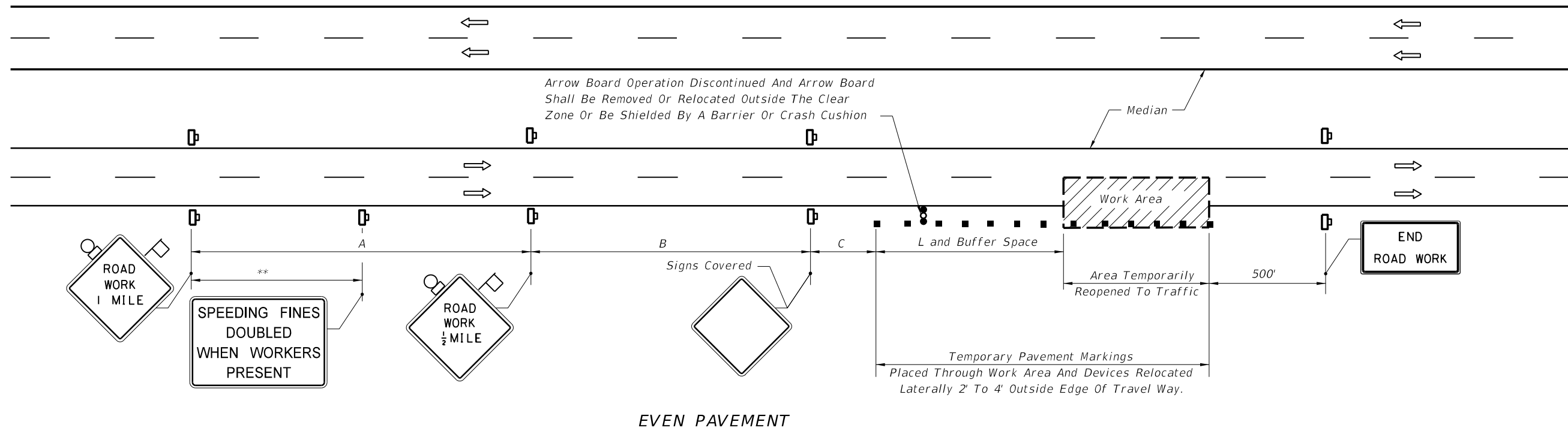
- Work operations shall be confined to one traffic lane, leaving the adjacent lane open to traffic.
- On undivided highways the median signs as shown are to be omitted.
- When work is performed in the median lane on divided highways, the channelizing device plan is inverted and left lane closed and lane ends signs substituted for the right lane closed and lane end signs.
 

The same applies to undivided highways with the following exceptions:

  - Work shall be confined within one median lane.
  - Additional barricades, cones, or drums shall be placed along the centerline abutting the work area and across the trailing end of the work area.


When work on undivided highways occurs across the centerline so as to encroach on both median lanes, the inverted plan is applied to the approach of both roadways.
- Signs and traffic control devices are to be modified in accordance with INTERMITTENT WORK STOPPAGE details (sheet 2 of 2) when no work is being performed and the highway is open to traffic.
- The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
- When paved shoulders having a width of 8 ft. or more are closed, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the travel way. See Index No. 612 for shoulder taper formulas.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
- This TCZ plan does not apply when work is being performed in the middle lane(s) of a six or more lane highway. See Index No. 614.
- For general TCZ requirements and additional information, refer to Index No. 600.

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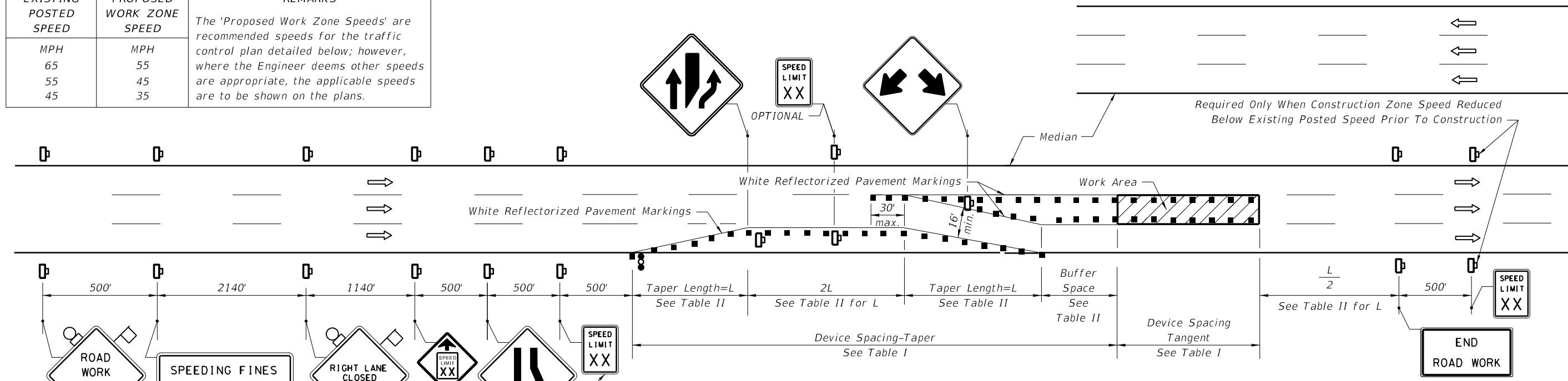


**INTERMITTENT WORK STOPPAGE - LANE REOPENED TO TRAFFIC**

5/21/2014 7:59:38 AM

LAST REVISION 07/01/05	REVISION DESCRIPTION:	 2015 DESIGN STANDARDS	MULTILANE, WORK WITHIN TRAVEL WAY MEDIAN OR OUTSIDE LANE	INDEX NO. 613	SHEET NO. 2 of 2
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EXISTING POSTED SPEED	PROPOSED WORK ZONE SPEED	REMARKS
MPH	MPH	The 'Proposed Work Zone Speeds' are recommended speeds for the traffic control plan detailed below; however, where the Engineer deems other speeds are appropriate, the applicable speeds are to be shown on the plans.
65	55	
55	45	
45	35	



Required Only When Construction Zone Speed Reduced Below Existing Posted Speed Prior To Construction

**Table I  
Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

**Table II  
Buffer Space and Taper Length**

Speed (mph)	Buffer Space (ft.)	Taper Length (12' Lateral Transition)		Notes (Merge)
		Dist. (ft.)	L (ft.)	
25	155	125	$L = \frac{WS^2}{60}$	
30	200	180		
35	250	245		
40	305	320		
45	360	540	$L = WS$	
50	425	600		
55	495	660		
60	570	720		
65	645	780		
70	730	840		

**CONDITION NOTES**

- The RIGHT LANE CLOSED and lane reduction signs are to be removed or fully covered when no work is being performed and the center lane is opened to traffic.
- For work performed in the median or outside lane, refer to Index No. 613.
- When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement marking used for marking new edge lines and centerline.

**GENERAL NOTES**

- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
- For general TCZ requirements and additional information, refer to Index No. 600.

**DURATION NOTES**

- Temporary pavement markings may be omitted for work operations less than 3 days.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

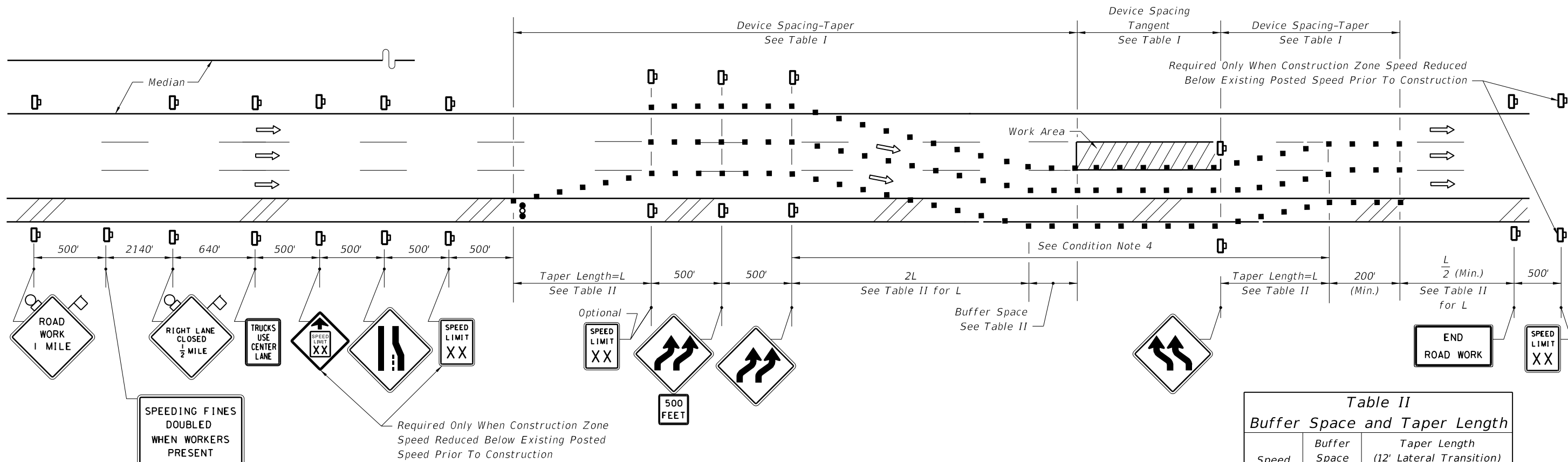
**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON ANY PORTION OF A CENTER LANE OF A MULTILANE HIGHWAY, AND TWO DRIVING LANES ARE MAINTAINED ON THE TRAVEL WAY.

**SYMBOLS**

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

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EXISTING POSTED SPEED	PROPOSED WORK ZONE SPEED	REMARKS
MPH	MPH	The 'Proposed Work Zone Speeds' are recommended speeds for the traffic control plan detailed below; however, where the Engineer deems other speeds are appropriate, the applicable speeds.
65	55	
55	45	
45	35	

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Speed (mph)	Buffer Space (ft)	Taper Length (12' Lateral Transition)		Notes (Merge)
		L (ft)		
25	155	125		$L = \frac{WS^2}{60}$
30	200	180		
35	250	245		
40	305	320		
45	360	540		$L = WS$
50	425	600		
55	495	660		
60	570	720		
65	645	780		
70	730	840		

**CONDITION NOTES**

1. See General Notes, Sheet 1.
2. Length of time that traffic is using shoulder should be minimized. For example, remove lane closure and lane shift at night (unless performing night work) if practical.
3. The RIGHT LANE CLOSED, lane reduction and reverse curve signs are to be removed or fully covered when no work is being performed and the travel way is open to traffic.
4. When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement markings used for marking new edge lines and centerlines.
5. For general TCZ requirements and additional information, refer to Index No. 600.

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

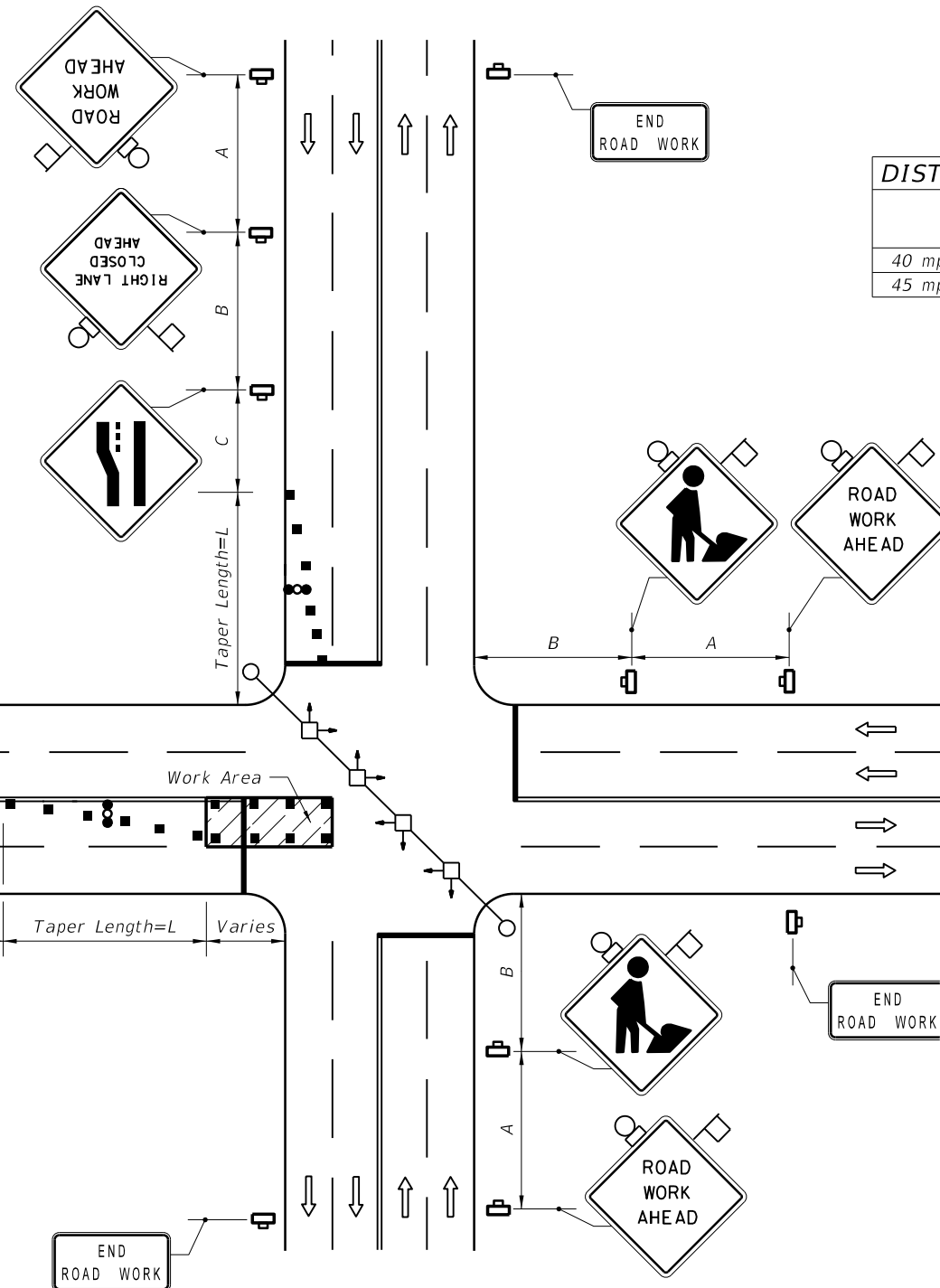
**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON ANY PORTION OF A CENTER LANE OF A MULTILANE HIGHWAY, AND TWO DRIVING LANES ARE MAINTAINED, AND, THE OUTSIDE SHOULDER PAVEMENT IS TEMPORARILY USED AS A TRAVEL LANE.

**SYMBOLS**

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board

5/21/2014 8:00:03 AM



Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350

Speed (mph)	L (ft.)	Notes (Merge)
25	125	$L = \frac{WS^2}{60}$
30	180	
35	245	
40	320	
45	540	$L=WS$

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

**GENERAL NOTES**

1. The WORKERS legend sign may be substituted for the symbol sign.
2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.
3. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.
4. Dual signs are required for divided roadways.
5. Maximum spacing between barricades, vertical panels, cones, tubular markers and drums shall not be greater than 25'.
6. Temporary signal phasing modifications are to be approved by the District Traffic Operations Engineer prior to the beginning of work.
7. For general TCZ requirements and additional information, refer to Index No. 600.

**DURATION NOTES**

1. Signs and arrow board may be omitted if all of the following conditions are met:
  - a. Work operations are 60 minutes or less.
  - b. Speed is 45 mph or less.
  - c. No sight obstructions to vehicles approaching the work area for a distance equal to twice the taper length.
  - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - e. Volume and complexity of the roadway has been considered.

- SYMBOLS**
- Work Area
  - Sign With 18"x 18" (Min.) Orange Flag And Type B Light
  - Channelizing Device (See Index No. 600)
  - Work Zone Sign
  - Stop Bar
  - Advance Warning Arrow Board
  - Lane Identification + Direction of Traffic

**SIGNALIZED**

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF AT LEAST ONE MEDIAN TRAFFIC LANE.

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### GENERAL NOTES








1. Work operations shall be confined to either one lane, or lane combinations as follows:
  - a. Outside travel lane;
  - b. Outside auxiliary lane;
  - c. Outside travel lane and adjoining auxiliary lane;
  - d. Inside travel lane  $\Delta$ ;
  - e. Inside auxiliary lane  $\Delta$ ;
  - f. Inside travel lane and adjoining auxiliary lane  $\Delta$   
 $\Delta$  See Sheet 3

If the work area is confined to an auxiliary lane the work area shall be barricaded and the RIGHT (LEFT) LANE CLOSED AHEAD signs replaced by ROAD WORK AHEAD signs, and the merge symbol signs eliminated.
2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.
3. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.
4. Signs are required on the median side for divided highways.
5. The two channelizing devices directly in front and directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
6. For general TCZ requirements and additional information, refer to Index No. 600.


### DURATION NOTES

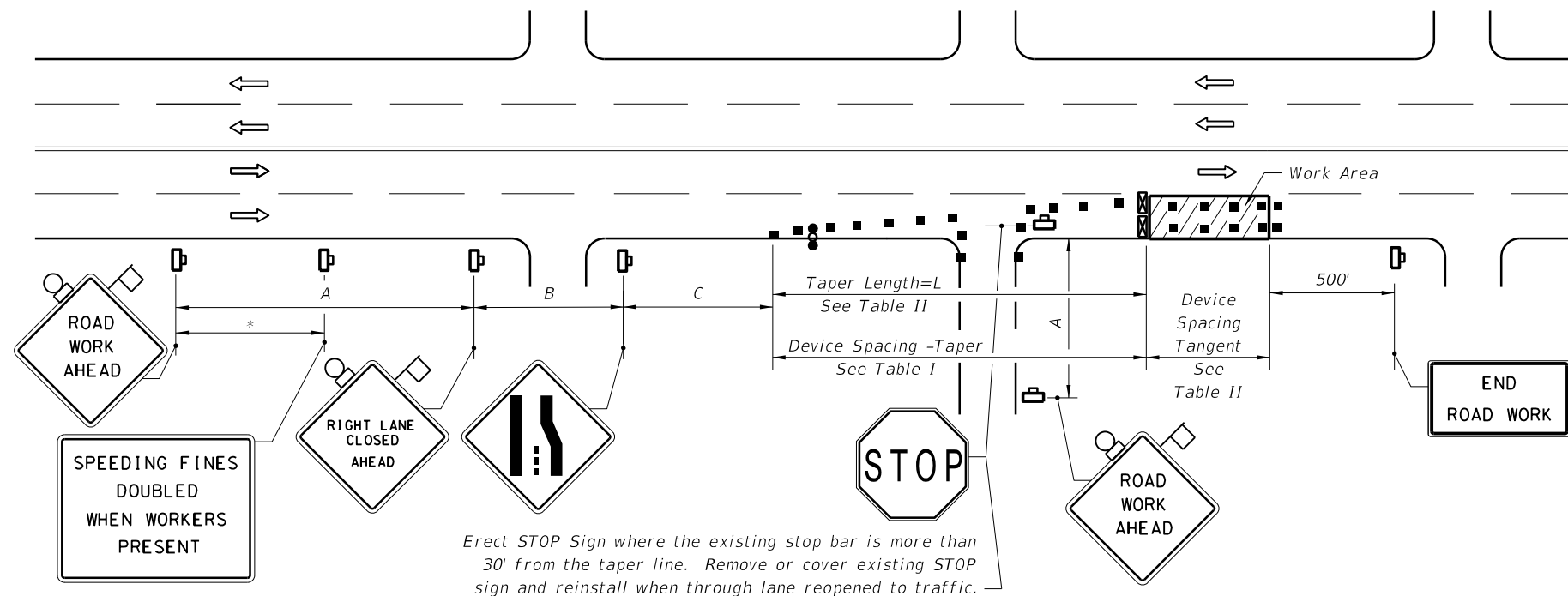
1. For work operations up to approximately 15 minutes, signs, channelizing devices, and arrow board may be omitted if all of the following conditions are met:
  - a. Speed limit is 45 mph or less.
  - b. No sight obstructions to vehicles approaching the work area for a distance equal to twice the taper length.
  - c. Volume and complexity of the roadway has been considered.
  - d. The closed lane is occupied by a class 5 or larger, medium duty truck(s) with a minimum gross weight vehicle rating (GWVR) of 16,001 lb with high-intensity, rotating, flashing, oscillating, or strobe lights mounted above the cab height and operating.
2. For work operations up to 60 minutes, the arrow board may be omitted if conditions a, b, and c in DURATION NOTE 1 are met, and vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

### SYMBOLS

-  Work Area
-  Sign With 18" x 18" (Min.) Orange Flag And Type B Light
-  Work Zone Sign
-  Advance Warning Arrow Board
-  Type III Barricade
-  Channelizing Device (See Index No. 600)
-  Lane Identification + Direction of Traffic

5/21/2014 8:00:59 AM

LAST REVISION 07/01/09	REVISION	DESCRIPTION:	 <b>2015 DESIGN STANDARDS</b>	<b>MULTILANE, WORK NEAR INTERSECTION MEDIAN OR OUTSIDE LANE</b>	INDEX NO. <b>616</b>	SHEET NO. <b>1 of 3</b>
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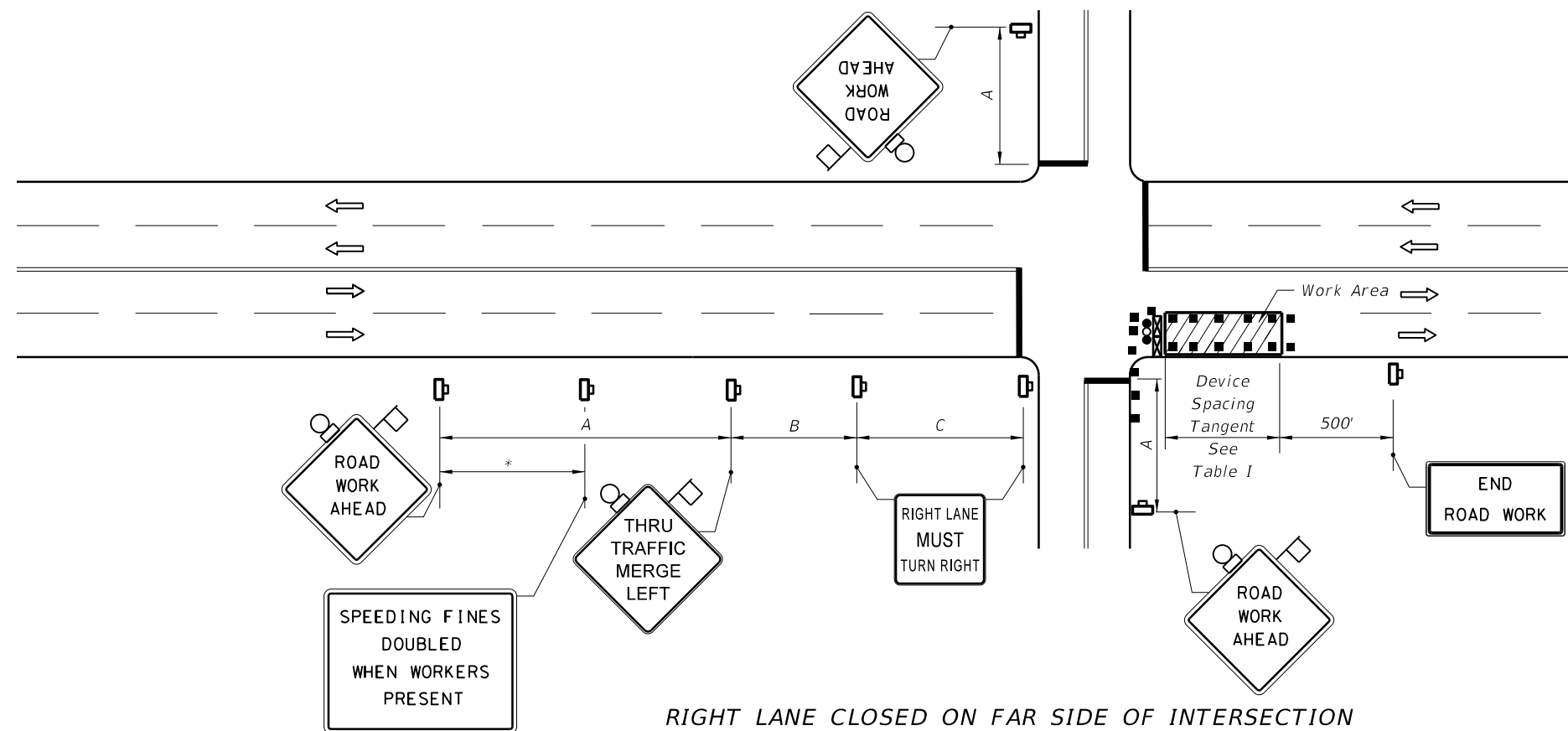
Erect STOP Sign where the existing stop bar is more than 30' from the taper line. Remove or cover existing STOP sign and reinstall when through lane reopened to traffic.

RIGHT LANE CLOSED ON FAR SIDE OF MINOR SIDESTREET

Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350

\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50



RIGHT LANE CLOSED ON FAR SIDE OF INTERSECTION WITH SIGNIFICANT RIGHT TURNING MOVEMENTS

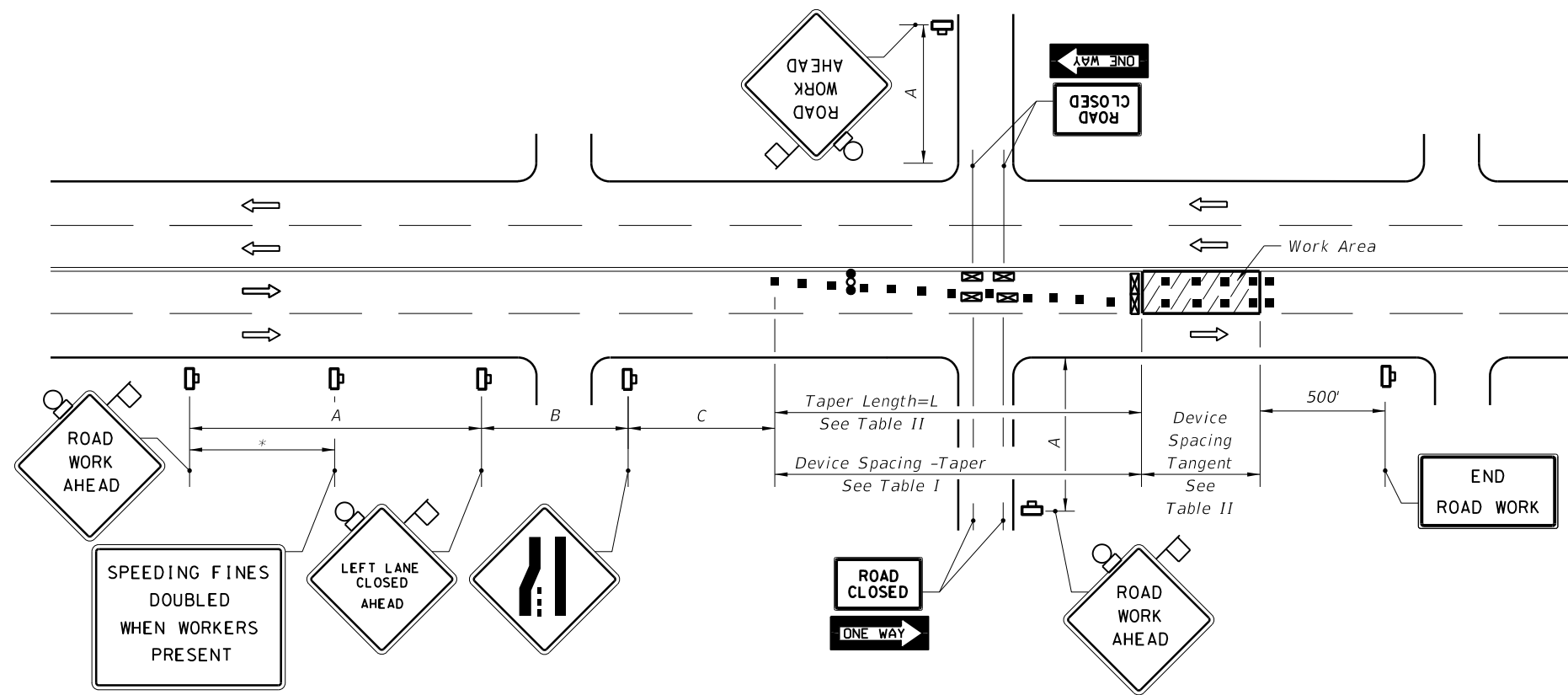
Speed (mph)	L (ft)	Notes (Merge)
25	125	$L = \frac{WS^2}{60}$
30	180	
35	245	
40	320	
45	540	$L=WS$

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

1. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a right lane having significant right turning movements, then the right lane may be restricted to right turns only as shown in this detail.

2. For intersection approaches reduced to a single lane, left turning movements may be prohibited to maintain capacity for through vehicular traffic.

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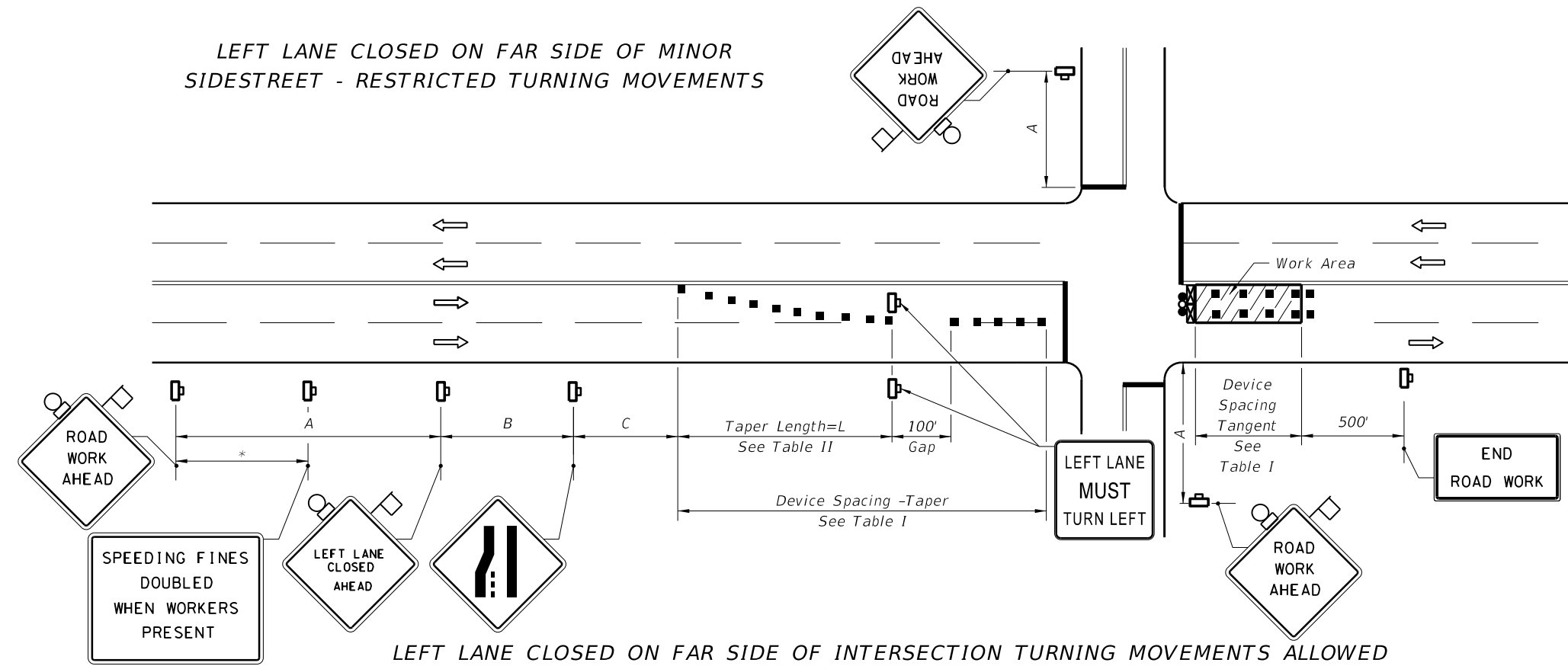
Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350

\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**Table I**  
**Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50

**LEFT LANE CLOSED ON FAR SIDE OF MINOR SIDESTREET - RESTRICTED TURNING MOVEMENTS**



**Table II**  
**Taper Length - Merge (12' Lateral Transition)**

Speed (mph)	L (ft.)	Notes (Merge)
25	125	$L = \frac{WS^2}{60}$
30	180	
35	245	
40	320	
45	540	$L = WS$

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

**LEFT LANE CLOSED ON FAR SIDE OF INTERSECTION TURNING MOVEMENTS ALLOWED**

1. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a left lane having significant left turning movements, then the left lane may be reopened as a turn bay for left turns only as show in this detail.

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Speed	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350

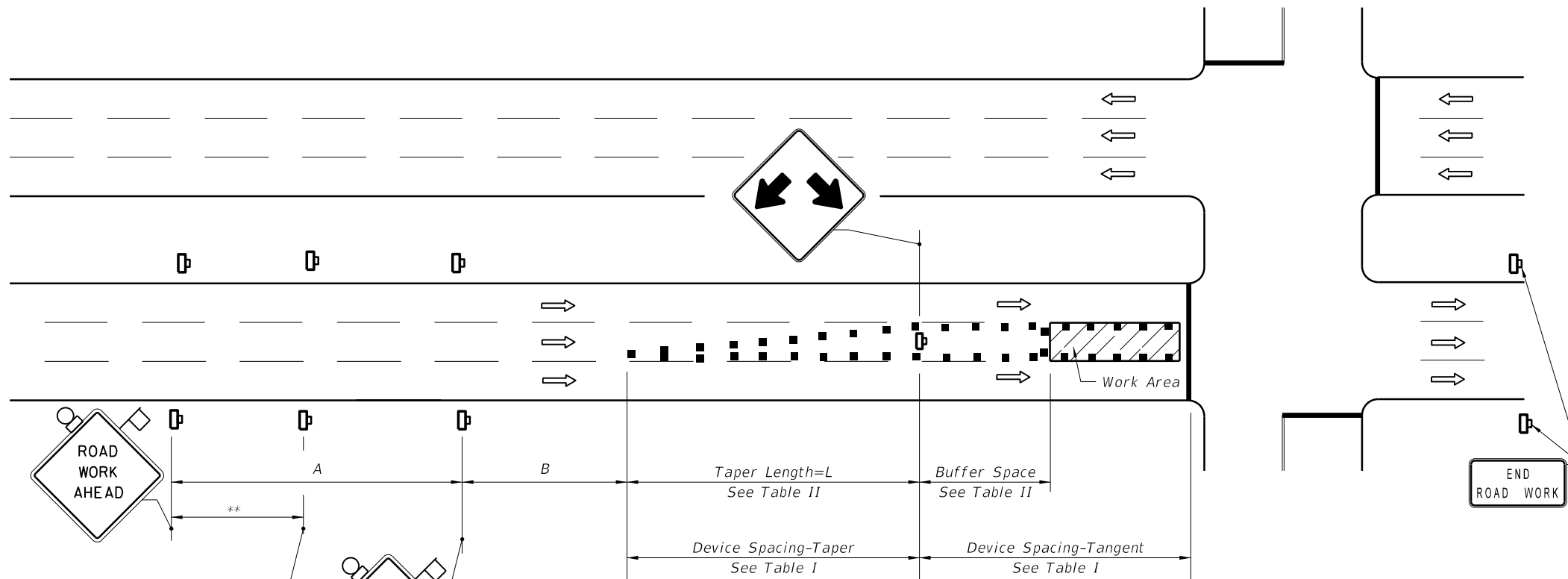
Table I Device Spacing				
Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Barricades or Vertical Type I or Type II Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50

Table II Buffer Space and Taper Length			
Speed (mph)	Buffer Space Dist. (ft.)	Taper Length (12' Lateral Transition)	
		L (ft.)	Notes (Merge)
25	155	125	$L = \frac{WS^2}{60}$
30	200	180	
35	250	245	
40	305	320	$L = WS$
45	360	540	

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
 L = Length of taper in feet  
 W = Width of lateral transition in feet  
 S = Posted speed limit (mph)

**CONDITIONS**  
 WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCR OACH ON THE PAVEMENT REQUIRING THE CLOSURE OF THE CENTER LANE NEAR AN INTERSECTION.



\*\* 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

**GENERAL NOTES**

1. Work operations shall be confined to one center travel lane, leaving the adjacent travel lanes open to traffic.
2. The merging taper shall direct vehicular traffic into either the right or left lane, but not both.
3. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.
4. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.
5. For general TCZ requirements and additional information, refer to Index No. 600.

**DURATION NOTES**

1. Signs and buffer space may be omitted if all of the following conditions are met:
  - a. Work operations are 60 minutes or less.
  - b. Speed limit is 45 mph or less.
  - c. No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space and the taper length combined.
  - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - e. Volume and complexity of the roadway has been considered.

**SYMBOLS**

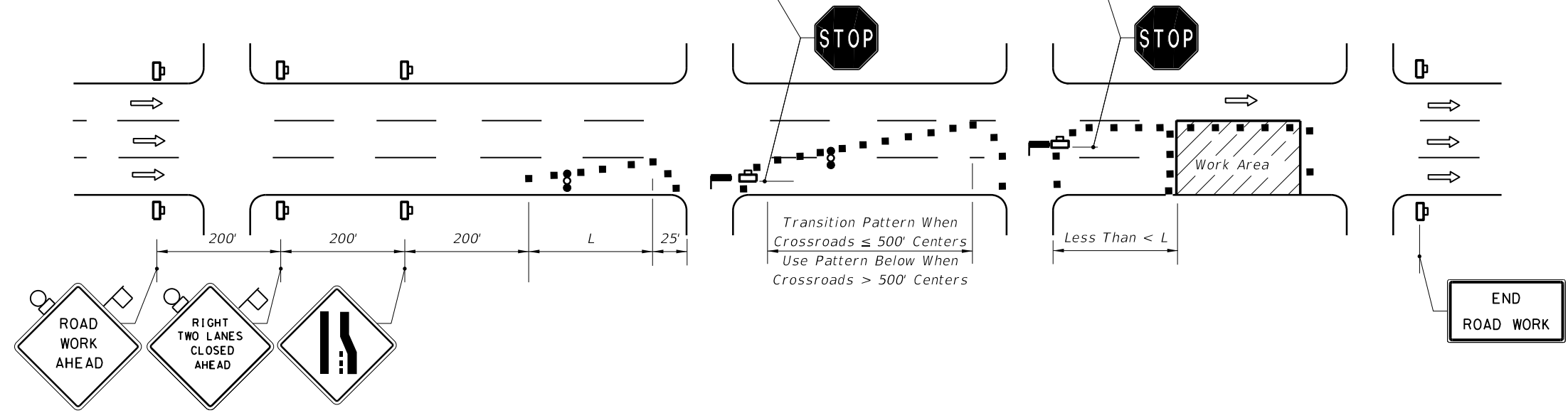
- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

Erect STOP Sign And Install Removable Stop Bar Marking. Remove Or Cover Existing STOP Sign And Reinstall When Through Lane Reopened To Traffic.

Erect STOP Sign And Install Removable Stop Bar Marking. Remove Or Cover Existing STOP Sign And Reinstall When Through Lane Reopened To Traffic.

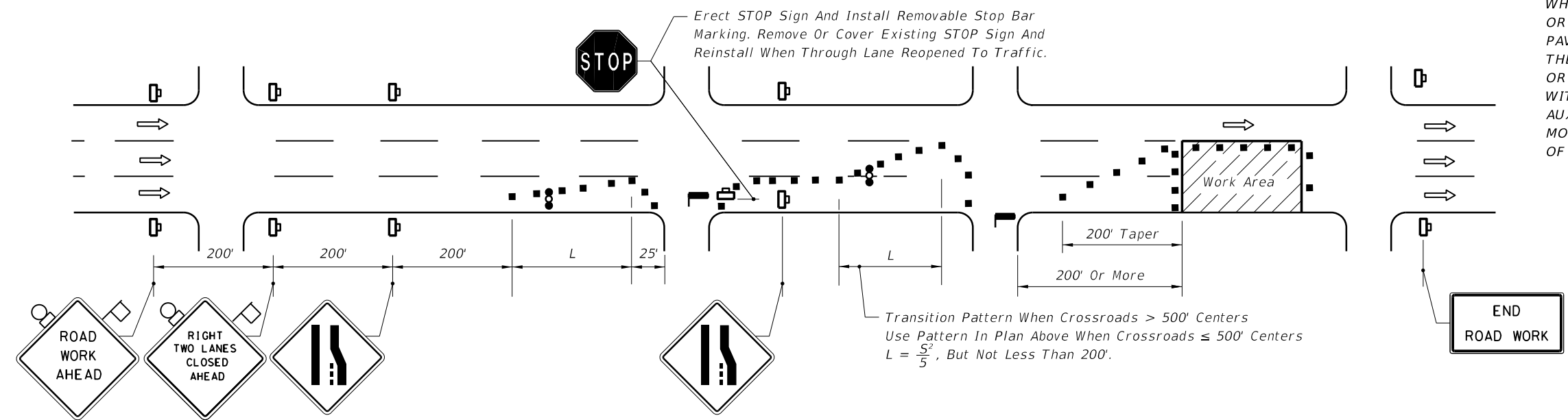
**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF EITHER THE OUTSIDE AND CENTER TRAVEL LANES OR THE MEDIAN AND CENTER TRAVEL LANES, WITH OR WITHOUT CLOSURE OF ADJOINING AUXILIARY LANES, FOR WORK AREA LESS THAN 200' FROM INTERSECTION, FOR A PERIOD OF MORE THAN 60 MINUTES.



**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF EITHER THE OUTSIDE AND CENTER TRAVEL LANES OR THE MEDIAN AND CENTER TRAVEL LANES, WITH OR WITHOUT CLOSURE OF ADJOINING AUXILIARY LANES, FOR WORK AREA 200' OR MORE FROM INTERSECTION, FOR A PERIOD OF MORE THAN 60 MINUTES.



**Table II**  
Taper Length - Merge  
(12' Lateral Transition)

Speed (mph)	L (ft.)	Notes (Merge)
25	125	$L = \frac{WS^2}{60}$
30	180	
35	245	
40	320	$L = WS$
45	540	

For lateral transitions other than 12', use formula for L shown in the notes column. Where:  
L = Length of taper in feet  
W = Width of lateral transition in feet  
S = Posted speed limit (mph)

Transition Pattern When Crossroads > 500' Centers  
Use Pattern In Plan Above When Crossroads ≤ 500' Centers  
 $L = \frac{S^2}{5}$ , But Not Less Than 200'.

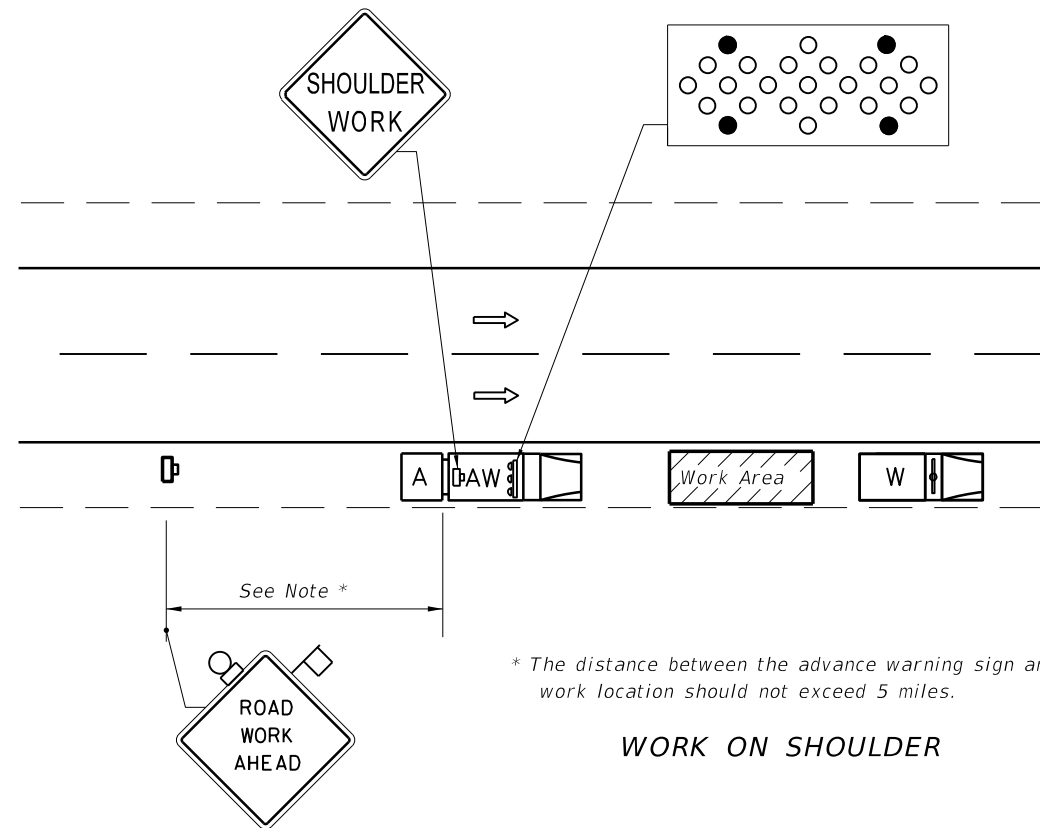
**GENERAL NOTES**

1. If the work space extends across a crosswalk, the crosswalk should be closed using the information in Index No. 660.
2. Signs are required on the median side for divided highways.
3. The two channelizing devices directly in front and directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
4. Within the lateral transitions, the maximum spacing between cones and tubular markers shall be 25'. Maximum spacing between Type I or Type II barricades or vertical panels or drums shall be based on the speed limit as follows: 15' up to 25 MPH; 30' for 30-40 MPH; 50' for 45 MPH.  
  
Spacing for devices parallel to the travel lanes shall be 25' centers for cones or tubular markers and 50' centers for Type I or Type II barricades or vertical panels or drums for 250', thereafter, cones or tubular markers at 50' centers and Type I or Type II barricades or vertical panels or drums at 100' centers.
5. For general TCZ requirements and additional information, refer to Index No. 600.

**SYMBOLS**

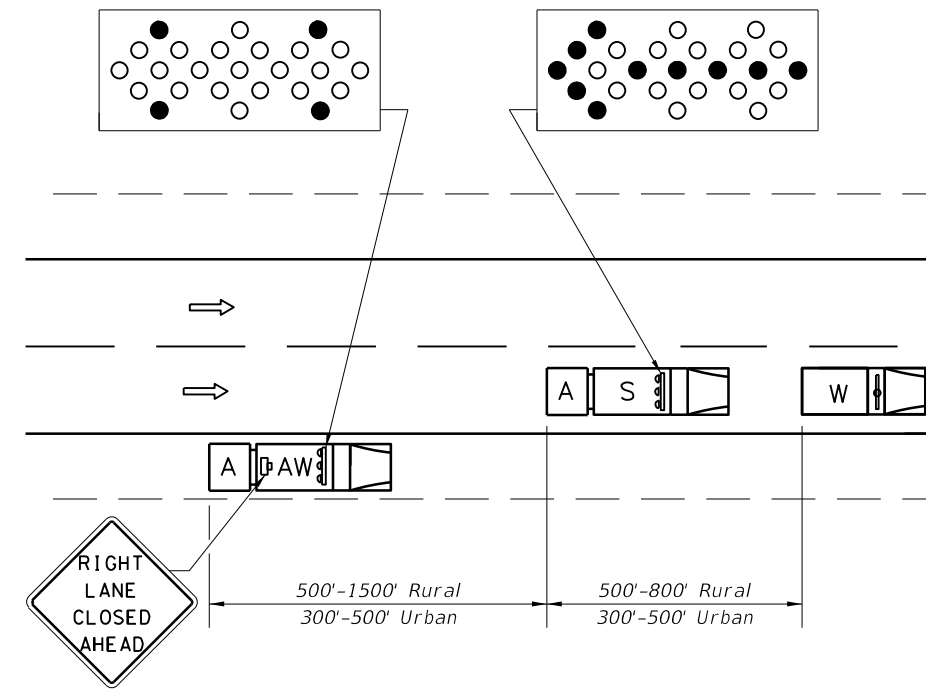
- Work Area
- Sign With 18"x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Stop Bar
- Lane Identification + Direction of Traffic

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\* The distance between the advance warning sign and the work location should not exceed 5 miles.

**WORK ON SHOULDER**



**ARROW BOARD MODE  
MOVE/MERGE**

Where adequate shoulder width is not available, the advance warning vehicle may drive in the lane.

**WORK WITHIN TRAVEL LANE**

**GENERAL NOTES**

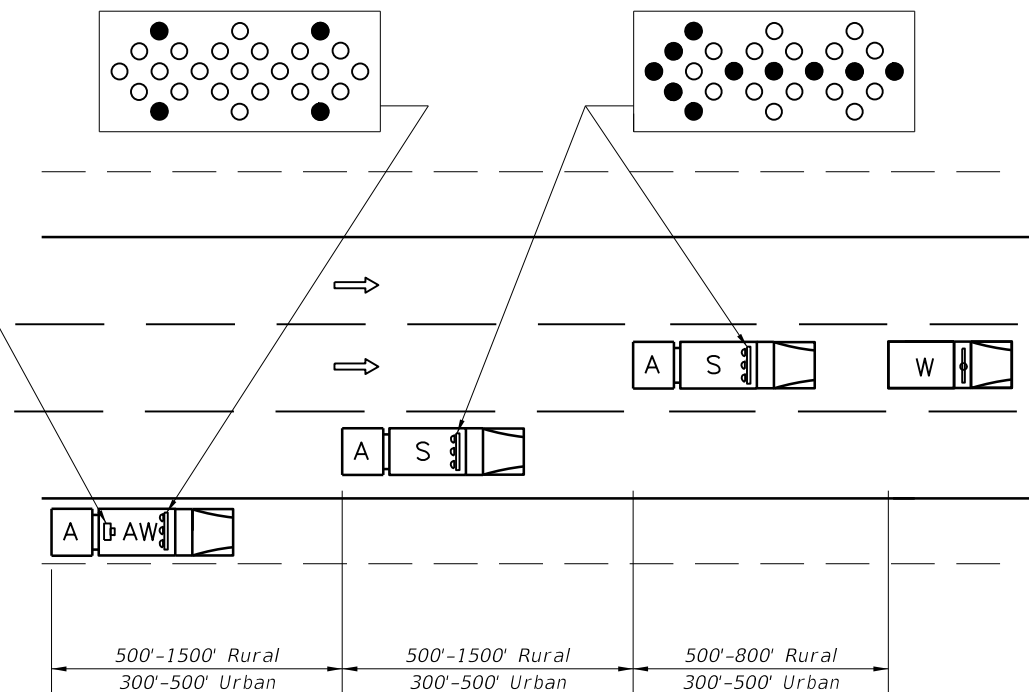
1. These illustrations are representative of general conditions.
2. The figures illustrate closing the right shoulder or right lanes for various lane configurations. When work is required on left side of roadways, the inverted plan is to be applied. The intent of this index is to allow passing on only one side of the work convoy.
3. Arrow boards shall not be obscured by equipment, supplies, signs, or the enclosure.
4. Vehicle-mounted signs shall be mounted with the bottom of the sign at a minimum height of 48 inches above the pavement. Vehicle mounted changeable message signs may be used in lieu of truck mounted static signs. Changeable message signs shall flash alternately to read "Left or Right Lane" or "Two Left or Two Right Lanes", "Closed Ahead", and the arrow symbol. Arrow boards shall not be used with truck mounted changeable message signs. Sign legends shall be covered or turned from view when work is not in progress.
5. On freeway facilities (interstates, toll roads, and expressways), a traffic control officer is required for all nighttime operations for work within the travel lane.
6. If the work vehicle speed exceeds the minimum legal speed limit on limited access facilities and one half the posted speed limit on other facilities, the Engineer may delete requirements for shadow vehicle and attenuator. The work vehicle will be required to have an arrow board and sign message.
7. Where work activities within 2' of the edge of travel way are Incidental (i.e. Mowing, Litter Removal), the Engineer may delete requirements for signs and the advance warning vehicle provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
8. Work, Shadow, and Advance Warning Vehicles shall have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
9. Functional two-way communication is required between all vehicles in the mobile operation convoy.
10. For general TCZ requirements and additional information, refer to Index No. 600.

**SYMBOLS**

- Work Vehicle
- Shadow (S) Vehicle with Arrow Board
- Advance Warning (AW) Vehicle with Arrow Board and Sign Message or Changeable Message Sign
- Truck/Trailer Mounted Attenuator (TMA)
- Lane Identification And Direction Of Traffic
- Arrow Board

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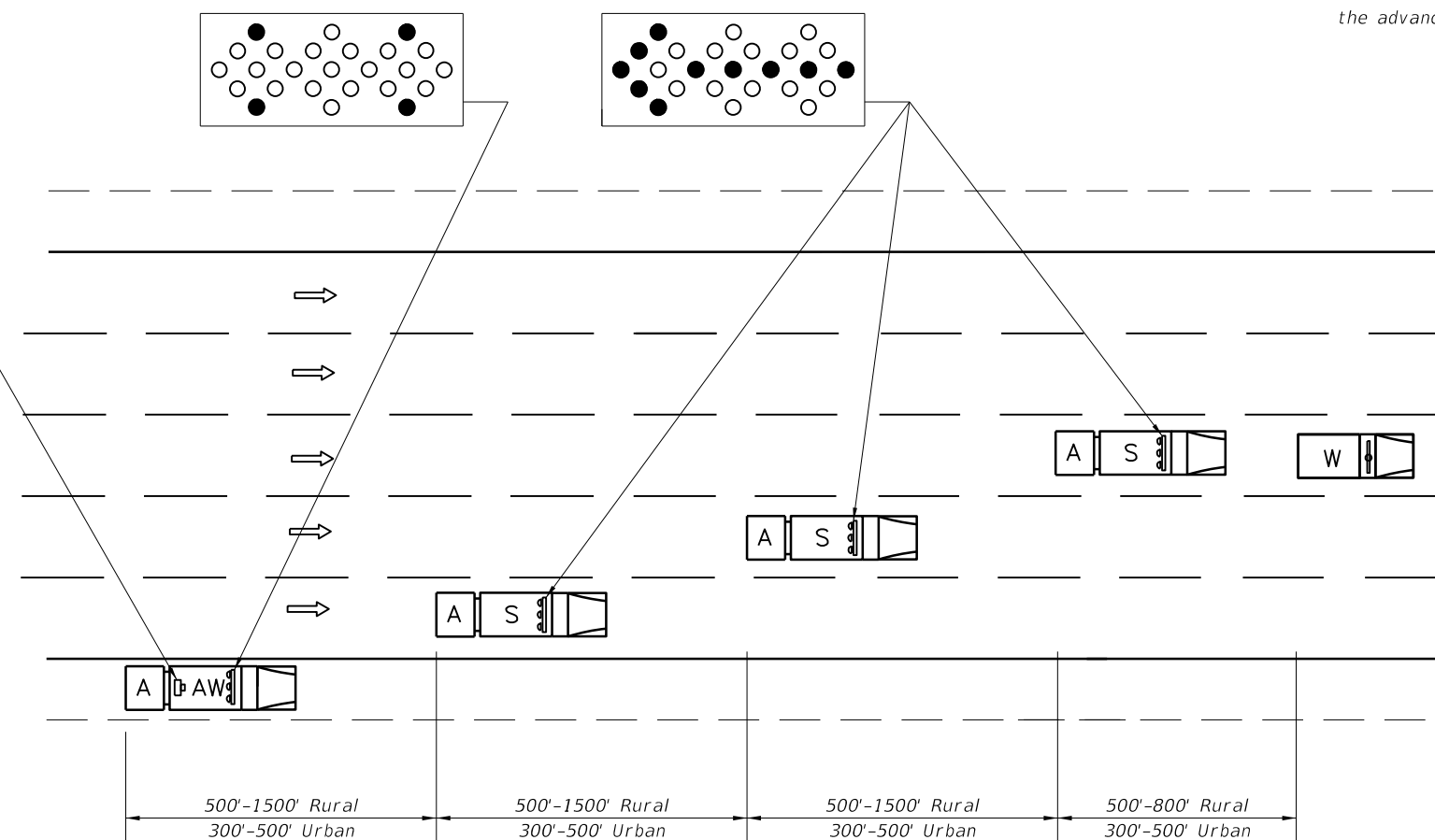
LAST REVISION 07/01/12	REVISION	DESCRIPTION:	 <b>2015 DESIGN STANDARDS</b>	<b>MULTILANE, MOBILE OPERATIONS WORK ON SHOULDER, WORK WITHIN TRAVEL WAY</b>	INDEX NO. <b>619</b>	SHEET NO. <b>1 of 2</b>
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WORK WITHIN TRAVEL WAY, CENTER LANE OR OUTSIDE CENTERLINE

ARROW BOARD MODE  
MOVE/MERGE

Where adequate shoulder width is not available,  
the advance warning vehicle may drive in the lane.



WORK WITHIN TRAVEL LANE

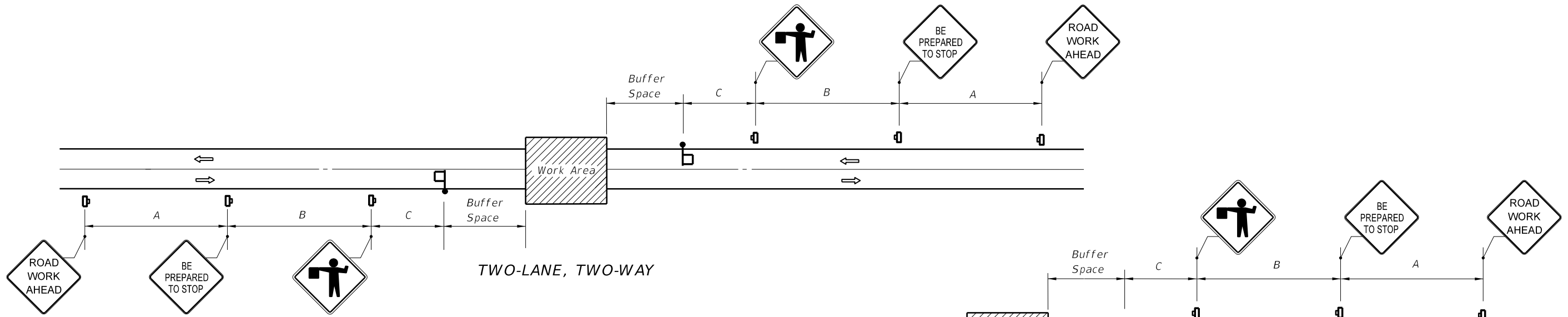
SYMBOLS

- Work Vehicle
- Shadow (S) Vehicle with Arrow Board
- Advance Warning (AW) Vehicle with Arrow Board and Sign Message or Changeable Message Sign
- Truck/Trailer Mounted Attenuator (TMA)
- Lane Identification And Direction Of Traffic
- Arrow Board

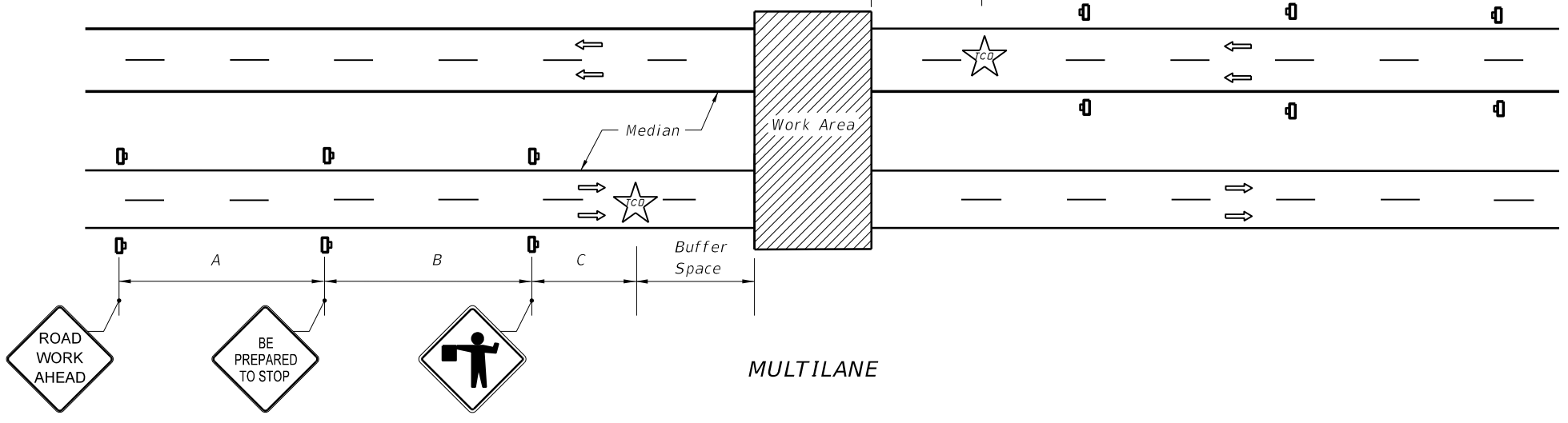
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LAST REVISION 07/01/12	REVISION	DESCRIPTION:	 2015 DESIGN STANDARDS	MULTILANE, MOBILE OPERATIONS WORK ON SHOULDER, WORK WITHIN TRAVEL WAY	INDEX NO. 619	SHEET NO. 2 of 2
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**TWO-LANE, TWO-WAY**



**MULTILANE**

BUFFER SPACE	
Speed (mph)	Dist. (ft.)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

DISTANCE BETWEEN SIGNS			
Speed (mph)	Spacing (ft.)		
	A	B	C
40 or less	200	200	200
45	350	350	350
50 or greater	500	500	500

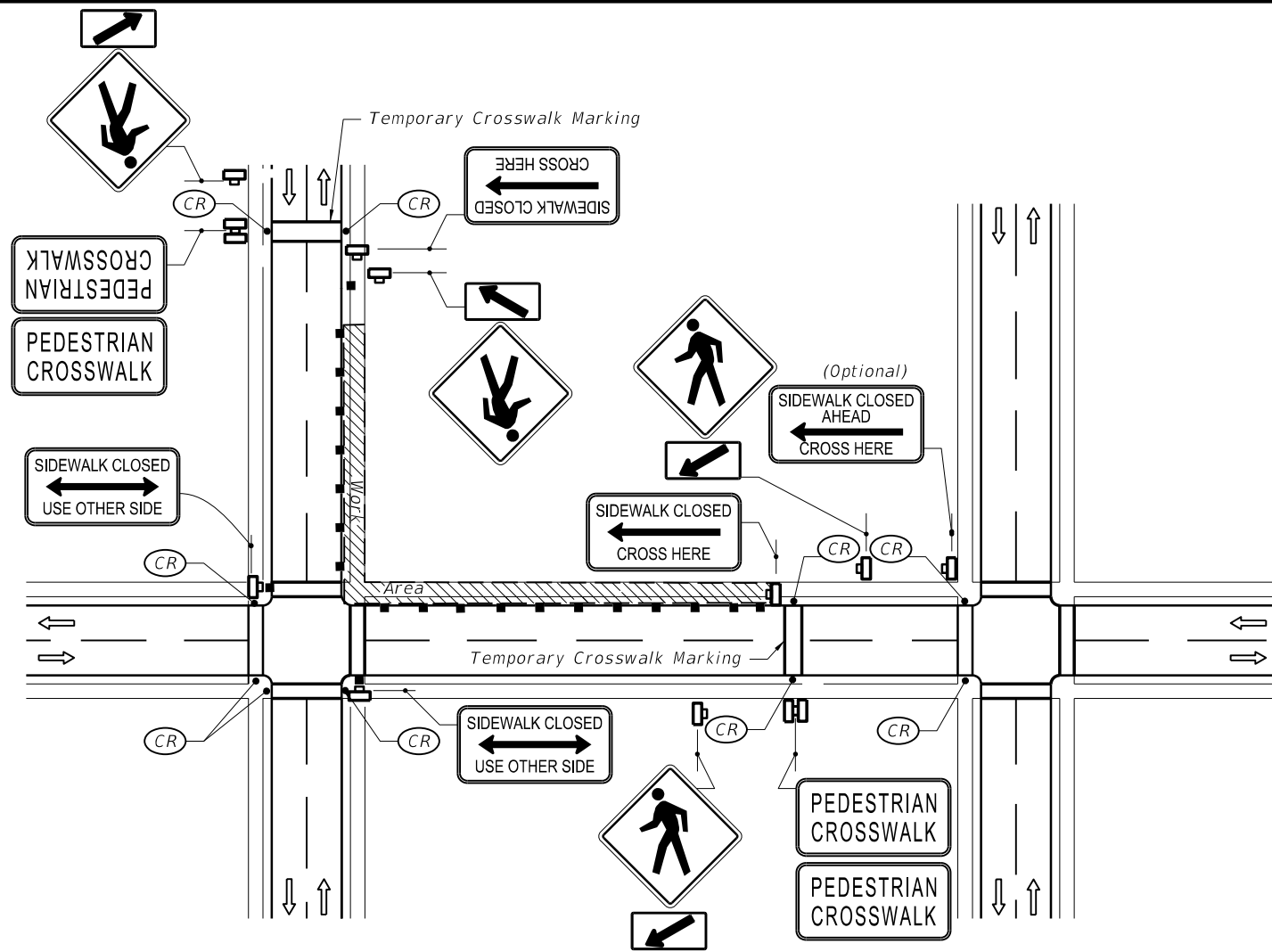
**SYMBOLS**

- Work Area
- Sign
- Work Zone Sign
- Flagger
- Traffic Control Officer
- Lane Identification + Direction of Traffic

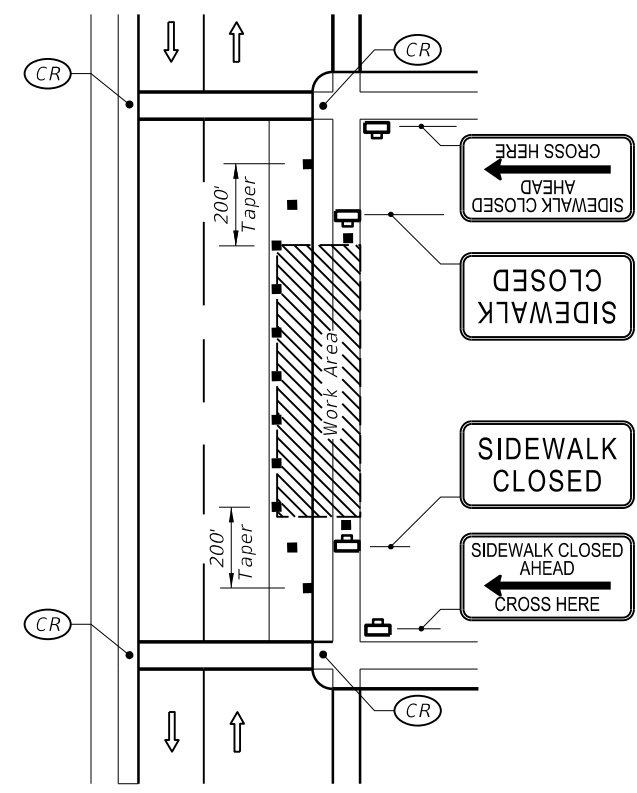
**GENERAL NOTES**

1. This Index does not apply to limited access facilities.
2. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with applicable TCZ Indexes.
3. Traffic volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
4. The buffer space may be omitted if there are no sight obstructions to vehicles approaching the Flagger/Officer for distance equal to the buffer space.
5. A Flagger may be substituted for a Traffic Control Officer and the BE PREPARED TO STOP sign may be omitted, when the following conditions are met:
  - a. Speed limit is 45 mph or less.
  - b. No sight obstructions to vehicles approaching the Flagger/Officer for a distance equal to the buffer space.
  - c. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
6. On undivided highways the median sign as shown are to be omitted.
7. For general TCZ requirements and additional information refer to FDOT Index No. 600.

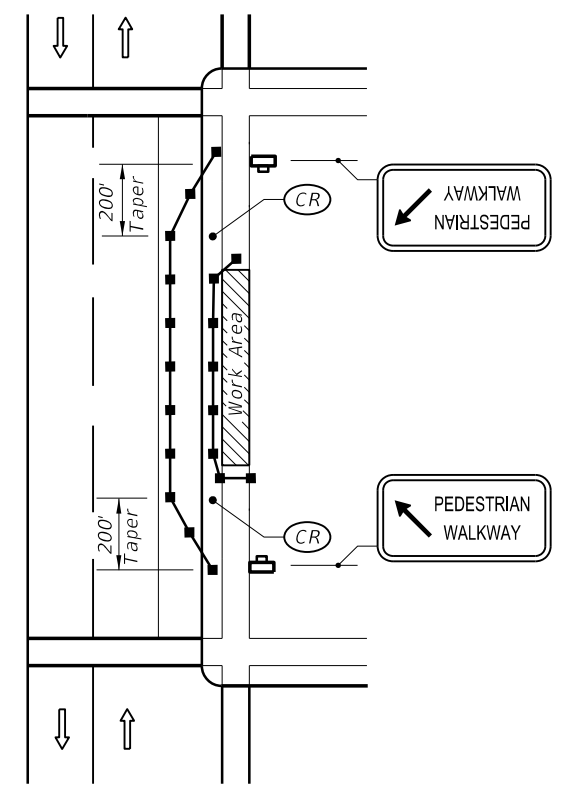
**CONDITIONS**  
 PLANNED CLOSURE NOT EXCEEDING 5 MINUTES.



**CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALKS**



**MID-BLOCK SIDEWALK CLOSURE**



**MID-BLOCK SIDEWALK CLOSURE WITH TEMPORARY WALKWAY**

**GENERAL NOTES**

1. Only the signs controlling pedestrian flows are shown. Other work zone signs will be needed to control traffic on the streets.
2. For spacing of traffic control devices and general TCZ requirements refer to Index No. 600. Maximum spacing between barricades, vertical panels, drums or tubular markers shall not be greater than 25'.
3. Street lighting should be considered.
4. For nighttime closures use Type A flashing warning lights on barricades supporting signs and closing sidewalks. Use Type C steady-burn lights on channelizing devices separating the work area from vehicular traffic.
5. Pedestrian traffic signal display controlling closed crosswalks shall be covered or deactivated.
6. Post Mounted Signs located near or adjacent to a sidewalk shall have a 7' minimum clearance from the bottom of sign to the sidewalk.
7. When construction activities involve sidewalks on both sides of the street, efforts should be made to stage the construction so that both sidewalks are not out of service at the same time.
8. In the event that sidewalks on both sides of the street are closed, pedestrians shall be guided around the construction zone.
9. Temporary walkways shall be a minimum of 4' wide with a maximum 0.02 cross slope and a maximum 0.05 running slope between ramps. Temporary walkways less than 5' in width shall provide for a 5' x 5' passing space at intervals not to exceed 200'. Temporary ramps shall meet the requirements for curb ramps specified in Index No. 304. Temporary walkway surfaces and ramps shall be stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.
10. Temporary ramps and temporary crosswalk markings shall be removed with reopening of the sidewalk, unless otherwise noted in the plans. All work and materials associated with constructing temporary curb ramps and temporary crosswalk markings, removal and disposal of temporary curb ramps and temporary crosswalk markings, and restoration to original condition shall be paid for as Maintenance of Traffic, Lump Sum.
11. A pedestrian longitudinal channelizing device shall be placed across the full width of the closed sidewalk.

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT WORKERS OR THEIR ACTIVITIES ENCROACH ON THE SIDEWALK FOR A PERIOD OF MORE THAN 60 MINUTES.

**SYMBOLS**

- Work Area
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Required Locations For Either Temporary Or Permanent Curb Ramps.
- Lane Identification + Direction of Traffic
- Pedestrian Longitudinal Channelizing Device

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LAST REVISION 07/01/13	REVISION	DESCRIPTION:	 <b>2015 DESIGN STANDARDS</b>	<b>PEDESTRIAN CONTROL FOR CLOSURE OF SIDEWALKS</b>	INDEX NO. <b>660</b>	SHEET NO. <b>1 of 1</b>
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