SOUTH HOUGHTON ROAD
WIDENING SOUTH OF I-10

GENERAL DESCRIPTION OF PROJECT

CONSTRUCTION BEGINS AT PANTANO/ANDRADA POLYTECHNIC HIGH SCHOOL AND ENDS AT THE I-10 TRAFFIC INTERCHANGE. THE 3.0 MILE IMPROVEMENT PROJECT INCLUDES A FOUR LANE DIVIDED ROADWAY, MULTI-USE LANES, CROSS DRAINAGE STRUCTURES, A TRAFFIC SIGNAL, RECONSTRUCTION OF SIDESTREET INTERSECTIONS AND TURNOUTS, NATIVE RE-VEGETATION LANDSCAPING, SIGNING, AND PAVEMENT MARKINGS.

PCDOT PROJECT NUMBER
4SHRWD

PIMA COUNTY BOARD OF SUPERVISORS
SHARON BRONSON, CHAIR, DISTRICT 3
REX SCOTT, DISTRICT 1    MATT HEINZ, DISTRICT 2
STEVE CHRISTY, DISTRICT 4    ADELITA GRIJALVA, DISTRICT 5

THIS PROJECT IS LOCATED WITHIN SUPERVISOR DISTRICT 4.

SHEET INDEX

Page No. Sheet No. Sheet Type
1  CS 1  Cover Sheet
2  GN 1  General Notes
3  DS1  Design Sheet
4-12 TY 1-9  Typical Section Sheets
13-19 SM 1-7  Summary Sheets
20-40 DT 1-21  Detail Sheets
41-45 HZ 1-6  Horizontal Control Sheets
46-59 DM 1-13  Demolition Plans
50-76 GM 1-18  Roadway Geometry Sheets
77-97 R 1-21  Roadway Plans & Profiles
98-101 ST 1-4  Sidewalk Plans & Profiles
102-108 DW 1-7  Driveway Plans & Profiles
109-115 SK 1-7  Staking Sheets
116-139 DR 1-24  Drainage Plans & Profiles
140-146 SD 1-7  Storm Drain Sheets
147-162 CH 1-16  Channel Sheets
163-175 PM 1-33  Pavement Marking Sheets
176-180 SM 1-5  Sign Summary
181-193 SG 1-13  Sign Sheets
194-197 TS 1-4  Traffic Signal Sheets
198-202 LT 1-5  Lighting Sheets
203-218 NP 1-1-2  Native Plant Inventory
219-238 LP 1-1-2  Landscape Sheets
1-16 XU 1-10  Existing Utility Plans
1-17 XS 1-17  Cross Sections
1-39 SW 1-29  SWPPP Sheets

PIMA COUNTY TRANSPORTATION

DRAFT FINAL
NOT FOR CONSTRUCTION

Project No. 4SHRWD
Sheet No. C51 of 1
Page No. 1 of 238
GENERAL NOTES:

1. CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE PIMA ASSOCIATION OF GOVERNMENTS (PAG) SPECIFICATIONS AND DETAILS, 2015 EDITION. IN ADDITION, THE CONSTRUCTION SHALL BE IN CONFORMANCE TO ALL OTHER SPECIFICATIONS AND DETAILS LISTED IN THE SPECIAL PROVISIONS.

2. UTILITY LOCATIONS SHOWN ON THE PLANS WERE COMPILED BASED ON THE BEST INFORMATION AVAILABLE TO THE DEPARTMENT. UTILITY LOCATIONS ARE NOT INTENDED TO BE EXACT OR COMPLETE, PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES WITH THE APPROPRIATE ORGANIZATIONS, CONTACT "BLUE STAKE" AT 1-800-728-5382 TWO FULL WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION SATURDAYS AND SUNDAYS ARE NOT CONSIDERED WORKING DAYS.

3. RIGHT-OF-WAY ENCROACHMENTS SHALL BE REMOVED ONLY BY ORDER OF PIMA COUNTY, UNLESS OTHERWISE NOTED.


6. BASIS OF BEARING


   BASIS OF SURVEY

   THE BASIS OF ELEVATION FOR THIS PROJECT IS PIMA COUNTY CQTY OPUS CONTROL POINT "55S5E,L2" HAVING AN HORIZONTAL ELEVATION OF 3079.53 FEET, AS DETERMINED BY DIFFERENTIAL LEVELING AND ADJUSTED BY PIMA COUNTY SURVEY IN JULY 1990.

   BASIS OF COORDINATES

   THE COORDINATES ARE DETERMINED BY STATE PLAN COORDINATES. THE PUBLISHED COORDINATES ARE DERIVED FROM STATE PLAN VALUES BY USING THE FOLLOWING FORMULAS.

   SURFACE NORTHING COORDINATES ARE DERIVED BY DIVIDING THE GRID COORDINATES BY 0.99990077 AND THEN SUBTRACTING 1,000,000.

   SURFACE EASTING COORDINATES ARE DERIVED BY DIVIDING THE GRID COORDINATES BY 0.99990077 AND THEN SUBTRACTING 1,000,000.

   FOR PIMA COUNTY OPUS CONTROL POINT "55S5E,L2" THE SURFACE COORDINATES ARE:

   NORTHING 1300721.260/0.99990077 = 1300000 + 80759.082
      EASTING 10504881708/0.99990077 = 1000000 + 54215.495

7. SOILS INFORMATION WILL BE MADE AVAILABLE TO PROSPECTIVE BIDDERS IN THE GEOFIELD REPORT, SOILS INFORMATION SO PROVIDED SHALL BE FOR INFORMATION PURPOSES ONLY. THIS INFORMATION WAS DEVELOPED AS ACCURATELY AS POSSIBLE BY THE METHODS USED. PIMA COUNTY ACCEPTS NO RESPONSIBILITY FOR ANY CONDITIONS ENCOUNTERED WHICH HAY FROM THE INFORMATION PROVIDED.

8. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS, ALLEYS, AND MAILBOXES DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT RESTRICT EMERGENCY VEHICLES, U.S. Postal Delivery, Solid Waste Collections, AND/OR ACCESS TO THE ADJACENT PROPERTIES, EXCEPT AS APPROVED BY THE ENGINEER.

GENERAL NOTES (CONTINUED)

9. OMISIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS, NOTES, OR DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

10. ALL STATIONING SHOWN ON THE PLANS AND PROFILES IS ALONG THE CONSTRUCTION CENTERLINE UNLESS OTHERWISE NOTED.

11. EXISTING UTILITIES INCLUDE, BUT MAY NOT BE LIMITED TO, OVERHEAD AND UNDERGROUND ELECTRIC, TELEPHONE, TELEVISION, FIBER, GAS, AND WATER, AND SHALL BE MOVED BY OTHERS UNLESS OTHERWISE NOTED AND SHOWN IN THESE PLANS.

12. THE CONTRACTOR SHALL GRADE 2% FROM EAST RIGHT OF WAY TO THE TOP OF THE BACK SLOPE OF THE PROPOSED CHANNELS ALONG THE EAST SIDE OF HOUGHTON ROAD TO ENSURE POSITIVE DRAINAGE. MAINTENANCE OPERATIONS MAY BE NEEDED AT AND AROUND EXISTING UTILITY POLES AND TRESTLES. THE COST WILL BE CONSIDERED AS INCLUDED IN THE CONTRACT PRICE FOR THE VARIOUS BID ITEMS FOR WHICH THIS WORK IS INCIDENTAL.


14. THE CONTRACTOR SHALL CALL IN AN ARIZONA 811 REQUEST AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY OR HEAVY EQUIPMENT TRAVEL WITHIN 25' OF THE EL PASO NATURAL GAS PIPELINE, AND ARRANGE FOR AN EPNG STANDBY.

ABBREVIATIONS NOT INCLUDED IN PAG STD DTL 10

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>ACP</td>
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<tr>
<td>DG</td>
<td>Shoulder</td>
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<tr>
<td>D</td>
<td>Standard</td>
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<td>DEP, EP</td>
<td>Temporary Construction Easement</td>
</tr>
<tr>
<td>GO</td>
<td>Vertical Curve</td>
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<td>IT2</td>
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Utility Owner Abbreviation Keys:

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<td>TEPO</td>
<td>Tucson Electric Power</td>
</tr>
<tr>
<td>AEP</td>
<td>Arizona Electric Power</td>
</tr>
<tr>
<td>WAPA</td>
<td>Western Area Power Administration</td>
</tr>
<tr>
<td>SWG</td>
<td>Southwest Gas</td>
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<tr>
<td>EP</td>
<td>El Paso Natural Gas</td>
</tr>
<tr>
<td>CTL</td>
<td>Century Link Communications (Verizon)</td>
</tr>
<tr>
<td>CGX</td>
<td>Cox Communications</td>
</tr>
<tr>
<td>PIR</td>
<td>Pima Regional Water</td>
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<td>RPS</td>
<td>Pima County Parks and Recreation</td>
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DNAGEO INTELLIGENT TRANSPORTATION SYSTEMS

DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)

IN MARICOPA COUNTY: (602) 263-1100
EARTHWORK QUANTITIES

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Raw No.</th>
<th>Description</th>
<th>Volume (CY)</th>
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<tr>
<td>9901001</td>
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<td>Roadway Excavation (Includes partial pavement removal)</td>
<td>33,368 CY</td>
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<td>9901002</td>
<td></td>
<td>Drainage Excavation</td>
<td>46,925 CY</td>
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<tr>
<td>9901003</td>
<td></td>
<td>Pipe Excavation</td>
<td>3,430 CY</td>
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<tr>
<td>9901004</td>
<td></td>
<td>Structural Excavation</td>
<td>31,785 CY</td>
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<tr>
<td>9901005</td>
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<td>Subtotal Excavation (Summed Rows 1 thru 4)</td>
<td>97,568 CY</td>
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<tr>
<td>9901006</td>
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<td>Pavement Removal Outside of Disturbances (assumed average 5&quot; thickness)</td>
<td>1,441 CY</td>
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<tr>
<td>9901007</td>
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<td>Shrink/Swell Compaction</td>
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<td>9901008</td>
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<td>Shrink (10%) (Excluding pavement removal) (10% x Row 8)</td>
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<tr>
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<tr>
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<td>Structural Excavation</td>
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<tr>
<td>9901012</td>
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<td>Pipe Excavation</td>
<td>3,430 CY</td>
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* For Informational Purposes Only

EARTHWORK FACTORS

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<td>99+25 to 258+45.49</td>
<td>10% Shrink</td>
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* Due to the variation of borrow sources, 10% shrink has been used in earthwork calculations to be conservative.

EARTHWORK NOTES

1. ROADWAY EXCAVATION INCLUDES ALL PARALLEL ROADWAY DRAINAGE CHANNELS AND DITCHES, EXCEPT CHANNELS BETWEEN FAIRGROUND AND SOUTH HOUGHTON ROAD, WHICH ARE INCLUDED IN DRAINAGE EXCAVATION. ROADWAY EXCAVATION ALSO INCLUDES THE EXISTING PAVEMENT THICKNESS. FOR EXCAVATION CALCULATIONS, AN ASSUMED AVERAGE THICKNESS OF 5" WAS USED.

2. STRUCTURAL EXCAVATION, STRUCTURE BACKFILL, PIPE EXCAVATION, PIPE BACKFILL, TRENCH BACKFILL, AND RIPRAP EXCAVATION ARE INCIDENTAL TO RESPECTIVE ITEMS AND ARE NOT CONSIDERED SEPARATE PAY ITEMS UNLESS OTHERWISE NOTED. PIPE EXCAVATION AND BACKFILL INCLUDE BOTH STORM DRAIN AND CROSS CULVERTS.

3. EARTHWORK CALCULATIONS FOR PIPES ARE BASED ON ADOT STANDARD DRAWING D-13-15. EARTHWORK CALCULATIONS FOR RMCs ARE BASED ON ADOT STANDARD DRAWING D-0-6-C.

4. EARTHWORK ADJUSTMENT FACTORS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. DESCRIPTIONS OF THE ADJUSTMENT FACTORS ARE AS FOLLOWS:

<table>
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<td>1.00</td>
<td>For Existing Ground Compaction</td>
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<tr>
<td>0.90</td>
<td>For Subsequent Compaction</td>
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LENGTH OF PROJECT

HoUGHTON ROAD
South of Interchange 10

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tr>
<td>STA 99+25 to 258+45.49</td>
<td>15,020.49 Feet</td>
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REFERENCES

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<td>4SHRAI (2016-2018)</td>
<td>Houghton Master Plan</td>
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PUBLIC DWY PAVEMENT SECTION TRANSITION

- Houghton Road Pavement Section
- Sliding Street Pavement Section

UTILITY DWY PAVEMENT SECTION TRANSITION

- Houghton Road Pavement Section
- Utility Dwelling Pavement Section

A.C. SAFETY EDGE DETAIL

* For Informational Purposes Only
SOUTHWEST TRANSITION
South Houghton Road
Sta 99+25 to 108+00

Travel Use Multi-Use

11' 7.5'-14' 9' 0'-20' 11' 6'-0'-15.70'

R/W Exst

Sec No. 1

Pvmt Str

SOUTHWEST TRANSITION
South Houghton Road
Sta 99+25 to 108+00

Travel Use Multi-Use

12' 15.5'-28' 0'-0'-20' 15.5' 6'-0'-15.70'

R/W Exst

Sec No. 2

Pvmt Str

TYPICAL 2-LANE SECTION
South Houghton Road
Sta 108+00 to 109+43.24

Travel Use Multi-Use

12' 15.5'-28' 0'-20' 15.5' 6'-0'-15.70'

R/W Exst

Sec No. 2

Pvmt Str

TYPICAL 2-LANE SECTION
South Houghton Road
Sta 108+00 to 109+43.24

Travel Use Multi-Use

12' 15.5'-28' 0'-0'-20' 15.5' 6'-0'-15.70'

R/W Exst

Sec No. 2

Pvmt Str

TYPICAL 2-LANE SECTION
South Houghton Road
Sta 108+00 to 109+43.24

Travel Use Multi-Use

12' 15.5'-28' 0'-0'-20' 15.5' 6'-0'-15.70'

R/W Exst

Sec No. 2

Pvmt Str

NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Roadway P&P Sheets for cut and fill slope applications.
NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Pavement P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical field investigation is currently in progress.
5. See P&P Sheets and Staking Sheets

South Haughton Road
Sta 109+62.37 to 119+40.41

TYPICAL 4-LANE SECTION

12' Roadway
50'

29' Roadway
10' Clear Zone
10' Clear Zone
29' Roadway
10'

New Vertical Curb, Type 1 (Typ)
PAG Std Dtl 209, H=6"

17' Vert. Varies

Slope

333 W. More Road, Suite 450
Tucson, AZ 85705
(520) 292-2300 (520) 292-1290 fax
www.psomas.com

before you begin excavation.
Call at least two full working days
In Maricopa County: (602) 263-1100
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
Arizona Blue Stake, Inc.

1. See Sheet DS01
2. See Pavement Marking Sheets for striping layout.
3. See Pavement P&P Sheets for cut and fill slope applications.
5. See P&P Sheets and Staking Sheets

NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Pavement P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical field investigation is currently in progress.
5. See P&P Sheets and Staking Sheets
NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Pavement P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical Field Investigation is currently in progress.
5. Site 135+73.30 to 136+97.31 See P&P Sheets and Staking Sheets

**TYPICAL 4-LANE SECTION**

**South Houghton Road**
Site 209+40.41 to 158+55.00

**Southbound Left Turn**
Site 136+97.31 to 140+34.94

**Northbound Left Turn**
Site 132+35.68 to 135+73.30

**Trapezoidal Collector Channel**
See Channel plans for details

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See Pavement Marking Sheets for striping layout.

---

See Pavement P&P Sheets for cut and fill slope applications.

---

See Pavement P&P and Right-of-Way Sheets for right-of-way information.

---

Pavement sections are preliminary for planning and estimating purposes. Geotechnical Field Investigation is currently in progress.

---

Site 135+73.30 to 136+97.31 See P&P Sheets and Staking Sheets

---

See Roadway P&P Sheets for cut and fill slope applications.

---

See Pavement Marking Sheets for striping layout.
NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Roadway P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical field investigation is currently in progress.
5. See roadway P&P sheets and Staking Sheets.
NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See Roadway P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical Field Investigation is currently in progress.
5. See P&P Sheets and Staking Sheets

See Sheet DS01
NOTES:

1. See Pavement Marking Sheets for striping layout.
2. See Pavement P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical field investigation is currently in progress.
5. See 214+91.64 to 236+26.56

See P&P sheets and Steeering Sheets

1. Sta 109+50.00 to 227+00.00, 0.4'
2. Sta 227+00.00 to 243+00.00, 0.4', See P&P sheets
3. Sta 193+50.00 to 194+50.00, 6:1
4. Sta 194+50.00 to 214+75.00, 10:1
5. Sta 214+91.64 to 216+30.00, 10:1

See Sheet DS01

---

**TYPICAL 4-LANE SECTION**

South Houghton Road

Sta 205+00.00 to 213+00.00

Right Turn

Sta 236+68.94 to 239+99.22

Left Turn

Sta 227+00.00 to 228+26.56

**Trapezoidal Collector Channel**

See Channel plans for details

---

**NEW VERTICAL CURB, TYPE 1 (Typ)**

PAG Std Dtl 209, H=6"
NOTES:
1. See Pavement Marking Sheets for striping layout.
2. See roadway P&P Sheets for cut and fill slope applications.
4. Pavement sections are preliminary for planning and estimating purposes. Geotechnical Field Investigation is currently in progress.
5. See P&P Sheets and Staking Sheets

1. See Roadway P&P Sheets and Staking Sheets for cross slope
2. See Roadway P&P Sheets and Staking Sheets for cut and fill slope
3. See Pavement Marking Sheets for striping layout.
5. See Sheet DS01

1. See Roadway P&P Sheets and Staking Sheets for cross slope
2. See Roadway P&P Sheets and Staking Sheets for cut and fill slope
3. See Pavement Marking Sheets for striping layout.
5. See Sheet DS01
before you begin excavation. Call at least two full working days ahead of your work for any underground utilities in Maricopa County: (602) 263-1100 or 1-800-STAKE-IT (782-5348) to mark the location of underground utilities.

**NOTES:**
1. See Pavement Marking Sheets for striping layout.
2. See Roadway P&P Sheets for cut and fill slope applications.
## Summary Sheet

### Station: SD 6.01 (4 of 5)

- **Backfill Placement and Measurement**: See note.
- **CUT-OFF WALLS AND LAPS AT CONSTRUCTION JOINTS.**
- **QUANTITIES FOR HEADWALLS, WINGS, APRONS, CURBS, TOTALS SHOWN FOR THE BOX CULVERT INCLUDE THE**
- **STRUCTURE DETAIL DRAWING** SD 6.01 (4 of 5)
- **END TREATMENT**
- **REINFORCED CONCRETE BOX CULVERT**
- **CONSTRUCTION** SD 6.01 (4 of 5)
- **Construction & End Treatment**
- **APPROXIMATE QUANTITIES**
- **LENGTH OF BARREL & BARREL EXTENSIONS**
- **WINGS / APRONS / MISCELLANEOUS**
- **Linear Feet (6.01)**
- **Box Culvert Total**

### Table:

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<th>Left X</th>
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<td>X-12</td>
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### Notes:

- **Dial 8-1-1 or 1-800-STAKE-IT (782-5348) before you begin excavation.**
- **Arizona Blue Stake, Inc.**
- **NO. R EV I S I O N  D E S C R I P T I O N**
- **DIV. E NG IN EE R**
- **SUMMARY SHEET**
- **COUnTY DEPARTMENT OF TRANSPORTATION**
- **www.psom.com**
<table>
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<tr>
<th>Station</th>
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<th>Length (ft.)</th>
<th>Ht.</th>
<th>Fill Height Range (Ft.)</th>
<th>Each</th>
<th>End Treatment</th>
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**NOTE:**
- For pipe culvert placement see standard spans 5-38 to 18-8.
- Pile options are indicated with letters 'P' in the space. Blank spaces are not allowable.

**END TREATMENT**
- Catch Basin, Manhole, Headwall & Junction Structure

**QUANTITIES**
- Dimensions in parentheses to meet minimum design life

**REMARKS**
- Call at least two full working days before you begin excavation.

**NEW PIPE SUMMARY SHEET**
- South Mountain Road
- Design:...
- Drawn:...
- SPSOMAS...
**STORM DRAIN PIPE SUMMARY TABLE**

<table>
<thead>
<tr>
<th>Station and Offset</th>
<th>Description</th>
<th>Pipe Material</th>
<th>Pipe</th>
<th>Quantities</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. PIPE OPTIONS ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE. STORM DRAIN PIPES SHALL BE RCP AND NO OTHER ALTERNATIVES WILL BE CONSIDERED.

2. THE ZEROS IN PARENTHESES (0, 0.0, 0.00 & 0.000) INDICATE THE TRIMENSIONAL PRECISION FOR THAT COLUMN.

3. FOR PIPE PLACEMENT, SEE ADOT STANDARDS C-13.10 & C-13.15.

4. PIPE COLLARS ARE CONSIDERED TO BE INCLUDED IN THE PRICE OF THE PIPE.

5. ABBREVIATIONS:
   - CSP: CORRUGATED STEEL PIPE
   - CAP: CORRUGATED ALUMINUM PIPE
   - RCP: REINFORCED CONCRETE PIPE
   - NRCIP: NON-REINFORCED IN-PLACE CONCRETE PIPE
   - NRCIPCP: NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
   - HS: HEAVY-DUTY POLYETHYLENE PLASTIC PIPE

**FILL HEIGHT RANGE TABLE (FT.)**

<table>
<thead>
<tr>
<th>Range No.</th>
<th>Fill</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AS/CM SOUTH HOUGHTON ROAD**

**PAGE**

**DATE**

**FOR PIPE CORRUGATION**

**ABBREVIATIONS:**

**DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)**

**IN MARICOPA COUNTY: (602) 263-1100**

**Before you begin excavation.**

**ARIZONA BLUE STAKE, INC.**

**WWW.PSOMAS.COM**
<table>
<thead>
<tr>
<th>Station and Offset</th>
<th>Pipe Size/Diameter</th>
<th>pipe Type</th>
<th>Length (ft.)</th>
<th>Coating</th>
<th>CAP</th>
<th>Flange</th>
<th>Preventive Measure</th>
<th>In.</th>
<th>Cubic Yard</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>248480.00 10.20&quot; L1</td>
<td>106 1</td>
<td>38 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 1</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>254422.01 10.20&quot; L1</td>
<td>101 2</td>
<td>24 56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>250401.00 10.20&quot; L1</td>
<td>102 2</td>
<td>24 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>249482.01 8.00&quot; L1</td>
<td>104 1</td>
<td>38 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>254472.00 10.20&quot; L1</td>
<td>105 1</td>
<td>38 58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>250453.00 8.00&quot; L1</td>
<td>104 1</td>
<td>24 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>254463.00 8.00&quot; L1</td>
<td>103 1</td>
<td>38 59</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
<td>250493.00 8.00&quot; L1</td>
<td>104 1</td>
<td>38 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>See Sheet SD06</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. PIPE OPTIONS ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE. STORM DRAIN PIPES SHALL BE RLP AND NO OTHER ALTERNATIVES WILL BE CONSIDERED.

2. THE ZEROS IN PARENTHESES (0, 0.0, 0.00 & 0.000) INDICATE THE PRECISION FOR THAT COLUMN.

3. FOR PIPE PLACEMENT, SEE ADOT STD DWGS C-13.10 & C-13.15.

4. PIPE COLLARS ARE CONSIDERED TO BE INCLUDED IN THE PRICE OF THE PIPE.

5. **ABBREVIATIONS:**

   CSP: CORRUGATED STEEL PIPE
   CAP: CORRUGATED ALUMINUM PIPE
   MOD: MODIFIED CONCRETE PIPE
   NRP: NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
   CPS: CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

**FILL HEIGHT RANGE TABLE [FT.]:**

<table>
<thead>
<tr>
<th>RANGE NO.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>FILL</td>
<td>&gt;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>HEIGHT (+, -)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**SCALE:**

This drawing is for illustrative purposes only. Stanley Consultants does not guarantee the accuracy of this drawing. This drawing is not to be used for construction purposes.
### CATCH BASIN SUMMARY SHEET

<table>
<thead>
<tr>
<th>Station</th>
<th>Wing Length (feet)</th>
<th>Slotted Drain</th>
<th>Catch Basin Inlet Elevation</th>
<th>Catch Basin Outlet Elevation</th>
<th>Remarks and Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>248+75.41, 10.00' Lt</td>
<td></td>
<td>3056.34</td>
<td>3056.29</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>249+42.11, 5.00' Lt</td>
<td></td>
<td>3056.34</td>
<td>3056.29</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>250+00.00, 10.00' Lt</td>
<td></td>
<td>3056.34</td>
<td>3056.29</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>251+38.91, 11.00' Lt</td>
<td></td>
<td>3053.91</td>
<td>3053.91</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>252+08.91, 00.00' Lt</td>
<td></td>
<td>3053.91</td>
<td>3053.91</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>253+00.00, 10.00' Lt</td>
<td></td>
<td>3053.91</td>
<td>3053.91</td>
<td></td>
</tr>
</tbody>
</table>

**Scupper Inlet Elevation**: Described in PAG Std Dtl 305.5.

**Outlet Pipe**: 3056.36 in 3056.29

**Inlet Pipe**: 3056.34 in 3056.29

**Remarks and Notes**

- Catch Basin Aprons within the roadway shall be 10 inch wide.
- The Scupper Inlet elevation is described in PAG Std Dtl 305.5.
- For EF-1 and EF-2 frame and grate information, refer to PAG Std Dtl 311.

---

### CATCH BASIN SUMMARY SHEET

<table>
<thead>
<tr>
<th>Catch Basin</th>
<th>Scupper Inlet Elevation</th>
<th>Code</th>
<th>Scallway</th>
<th>Remarks and Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>09+68.85, 39.00' Lt</td>
<td>3056.34</td>
<td>2</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

---

### Note:

- Catch Basin Aprons within the roadway shall be 10 inch wide.
- The Scupper Inlet elevation is described in PAG Std Dtl 305.5.
- For EF-1 and EF-2 frame and grate information, refer to PAG Std Dtl 311.

---

**Scale:** 1" = 20' 1" = 20'

**Date:** June 18, 2021

**Authors:**
- 3/333 E. W. Newton Road, Suite 450
- Tucson, AZ 85705
- (520) 292-2300 (520) 292-1290 fax
- www.psimas.com

**Design:**
- ANA M. OLIVERES, P.E., DIRECTOR

**Engineering:**
- CATCH BASIN
- SOUTH HOUGHTON ROAD

---

**Roadway:**
- Catch Basin Aprons within the roadway shall be 10 inch wide.
### BARRIER SUMMARY SHEET

<table>
<thead>
<tr>
<th>Location</th>
<th>Barrier</th>
<th>Transition</th>
<th>End Treatment</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta 104+323</td>
<td>1</td>
<td>×</td>
<td>675</td>
<td>7</td>
</tr>
<tr>
<td>Sta 108+46.88</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sta 264+50.75</td>
<td>2</td>
<td>×</td>
<td>585</td>
<td></td>
</tr>
<tr>
<td>Sta 252+81.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- The digits in parentheses (0.20) indicate the dimensional precision for that column.
- Length is from length of need (line point to line point) and design length varies depending on terminal type. See special provisions.
- See bridge sheets for bridge barrier details and quantities.
- Specify type 1 or 2 under remarks.
- Specify other width under "Remarks."
### Human-Readable Text

**Detectable Warning Strip (Typ)**

**Maintain Flowline**

**See Table to Right**

**Station Location**

**See Geometry Sheets**

**Paved Path**

**Concrete Header**

**Max 5%**

**Max 2%**

**Per PAG Std. Spec. 908**

**6" Min. Prepared Subgrade**

**6' Min. Prepared Subgrade** per PAG Std. Spec. 908

**NOTES:**

1. For design element not shown, see PC Std. Dtl. 200, Sheet B of 11.
2. See PC Std. Dtl. 200, Sheet 11 of 11 for additional information on detectable warning surface requirements.
3. See PAG Std. Dtl. 200 for Joint requirements.
4. See Roadway Plans for location and configuration of multi-use path and sidewalk.
5. All ramps on this sheet will be paid for under Item 9082B7 - Curb Access Ramp (Special).

**PEDESTRIAN RAMP LOCATIONS**

<table>
<thead>
<tr>
<th>Ramp #</th>
<th>Station, Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sta 96+33.33, 58.50' Lt</td>
</tr>
<tr>
<td>2</td>
<td>Sta 100+45.47, 58.50' Lt</td>
</tr>
<tr>
<td>3</td>
<td>Sta 103+49.12, 50.50' Lt</td>
</tr>
<tr>
<td>4</td>
<td>Sta 103+87.99, 50.50' Lt</td>
</tr>
<tr>
<td>5</td>
<td>Sta 109+35.53, 50.50' Lt</td>
</tr>
<tr>
<td>6</td>
<td>Sta 109+24.08, 51.00' Lt</td>
</tr>
<tr>
<td>7</td>
<td>Sta 141+42.98, 24.00' Lt</td>
</tr>
<tr>
<td>8</td>
<td>Sta 141+67.00, 54.00' Lt</td>
</tr>
<tr>
<td>9</td>
<td>Sta 143+12.00, 54.00' Lt</td>
</tr>
<tr>
<td>10</td>
<td>Sta 143+37.00, 54.00' Lt</td>
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<tr>
<td>11</td>
<td>Sta 162+45.29, 61.00' Lt</td>
</tr>
<tr>
<td>12</td>
<td>Sta 163+26.57, 61.00' Lt</td>
</tr>
<tr>
<td>13</td>
<td>Sta 189+44.00, 61.00' Lt</td>
</tr>
<tr>
<td>14</td>
<td>Sta 190+14.07, 61.00' Lt</td>
</tr>
<tr>
<td>15</td>
<td>Sta 190+48.97, 61.00' Lt</td>
</tr>
<tr>
<td>16</td>
<td>Sta 208+24.98, 54.00' Lt</td>
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<tr>
<td>17</td>
<td>Sta 208+49.02, 54.00' Lt</td>
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<tr>
<td>18</td>
<td>Sta 215+14.93, 61.00' Lt</td>
</tr>
<tr>
<td>19</td>
<td>Sta 216+07.03, 61.00' Lt</td>
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<tr>
<td>20</td>
<td>Sta 253+68.65, 55.46' Lt</td>
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<tr>
<td>21</td>
<td>Sta 253+88.15, 55.43' Lt</td>
</tr>
<tr>
<td>22</td>
<td>Sta 253+88.15, 55.45' Lt</td>
</tr>
</tbody>
</table>

**SECTION B**

**NTS**

**Header Curb (Typ)**

**6' Min. Prepared Subgrade** per PAG Std. Spec. 908

---

**NOTES:**

1. Call at least two full working days before you begin excavation.
2. In Maricopa County: (602) 263-1100 Dial 8-1-1 or 1-800-STAKE-IT (782-5348) Arizona Blue Stake, Inc.
NOTES:
1. For Barbed Wire Gate dimensions not shown see ADOT Std CH 12.10 Sheet 3 of 3 for Type 1 Single Gate.
2. For Chainlink Gate dimensions not shown see ADOT Std CH 12.20 Sheet 3 of 3 for Type 1 Single & Double Gates.
3. See Roadway P&P Sheets for Gate locations.

* Coordinate with Southwest Gas for exact gate location.
Typical Fence layout at Drainage Culverts

Barbed wire fence to terminate at headwall handrail.
End of rows of Fairgrounds culverts to run continuously across culverts.

Edge of Pavement

Details:
- Chainlink and Barbed Wire Fence and Gate Details
- 10'-20' Typical
- Fit in Field
- Typical Fence layout at Drainage Culverts
- Call at least two full working days before you begin excavation.
- Arizona Blue Stake, Inc.
- Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
- In Maricopa County: (602) 263-1100
- W. Wetmore Road, Suite 450
- Tucson, AZ 85705
- (520) 292-2300    (520) 292-1290    fax
- www.psmas.com

PREPARED BY:

CHECKED BY:

DESIGNED BY:

DRAWN BY:

DATE

REVISION DESCRIPTION

SCALE:

HORIZ.

VERT.

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

PROJECT ENG.: ANTONIO M. OLIVARES, P.E., DIRECTOR

SOUTH HOU GHT O N ROAD WIDENING SOUTH OF I-10

CONSTRUCTION

SOUTHERN AZ/CM CZ

06-21

CONSTRUCTION

SOUTHERN AZ/CM CZ

06-21

SOUTHERN AZ/CM CZ

06-21

CONSTRUCTION

SOUTHERN AZ/CM CZ

06-21

SOUTHERN AZ/CM CZ

06-21

CONSTRUCTION

SOUTHERN AZ/CM CZ

06-21

SOUTHERN AZ/CM CZ

06-21
**ALTERNATING HOOK DIRECTION (UP & DOWN) PLAN VIEW**

Notes:
1. Provide connection at all wire-tied riprap/gabion and concrete wall interfaces.
2. Galvalloy or equivalent after field installed with Calvicon.

---

**WIRE-TIED RIPRAP/GABION TO CONCRETE WALL CONNECTION**

**SECTION**

---

**DUMPED RIPRAP GRADATION**

**SIZE OF MATERIAL**

**SAND WASHOUT**

**RIP RAP**

<table>
<thead>
<tr>
<th>DIA (Inches)</th>
<th>65</th>
<th>85</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>12</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td>12</td>
<td>18</td>
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<tr>
<td>10</td>
<td>5</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

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**RIP RAP Quantities**

**Diameter**

<table>
<thead>
<tr>
<th>Size of Material</th>
<th>6''</th>
<th>8''</th>
<th>10''</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumped Riprap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**CONCRETE WALL CONNECTION**

---

**DETAIL D1**

Outlet Protection - CBC Plunge Basin

---

**NOT TO SCALE**

---

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

---

**SHEET 23 OF 238**
Outlet Protection - RCP Plunge Basin
Sta 139+65.00

Note 1. See Drainage Sheets for culvert information and grading theta.s.
### PIPE CULVERT OUTLET PROTECTION TABLE

<table>
<thead>
<tr>
<th>Sheet</th>
<th>Size</th>
<th>Type</th>
<th>Station</th>
<th>B (Ft)</th>
<th>T (Ft)</th>
<th>H (Ft)</th>
<th>W1 (Ft)</th>
<th>W2 (Ft)</th>
<th>Critical Point Conditions</th>
<th>Culvert Apron</th>
<th>Dumped Riprap Quantities (CY)</th>
<th>Gabion Quantities (CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DR01</td>
<td>5-30&quot;</td>
<td>RCP</td>
<td>110+00.00</td>
<td>21.6</td>
<td>18</td>
<td>36.5</td>
<td>18.3</td>
<td>318.1</td>
<td>N</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>DR02</td>
<td>5-42&quot;</td>
<td>RCP</td>
<td>154+00.00</td>
<td>20.7</td>
<td>18</td>
<td>51.7</td>
<td>24.6</td>
<td>3098.2</td>
<td>N</td>
<td>45</td>
<td>15</td>
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<tr>
<td>3</td>
<td>DR10</td>
<td>3-24&quot;</td>
<td>RCP</td>
<td>175+54.21</td>
<td>16.0</td>
<td>18</td>
<td>21.0</td>
<td>15.5</td>
<td>3077.2</td>
<td>N</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>DR21</td>
<td>4-48&quot;</td>
<td>RCP</td>
<td>230+20.00</td>
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<td>18</td>
<td>45.2</td>
<td>25.0</td>
<td>3099.1</td>
<td>r</td>
<td>63</td>
<td>16</td>
</tr>
</tbody>
</table>

**Notes:**
1. See Drainage Sheets for culvert information and grading limits.
2. Gabion basket cut-off wall applies to DR02 and DR21 only.

---

**New Details**

### Outlet Protection - RCP Splash Pad

- **Detail D3**
  - **Concrete Apron**
  - **Gabion Basket Cut-off Wall**

**Gabion Basket Cut-off Wall applies to DR08 and DR21 only.**

- See Drainage Sheets for culvert information and grading limits.

---

**Call at least two full working days before you begin excavation.**

- **In Maricopa County:** (602) 263-1100
- **Dial 8-1-1 or 1-800-STAKE-IT (782-5348)**

**Arizona Blue Stake, Inc.**
Outlet Protection - RCBC Splash Pad

### BOX CULVERT OUTLET PROTECTION TABLE

<table>
<thead>
<tr>
<th>Sheet</th>
<th>Size</th>
<th>Type</th>
<th>Elevation</th>
<th>Culvert Size</th>
<th>Quantity (CY)</th>
<th>Gabion Quantity (CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>DR03</td>
<td>RCBC</td>
<td>135-46.00</td>
<td>34.9</td>
<td>3099.6</td>
<td>3000.0</td>
</tr>
<tr>
<td>4</td>
<td>DR06</td>
<td>RCBC</td>
<td>250-35.00</td>
<td>29.9</td>
<td>3099.5</td>
<td>3099.5</td>
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<tr>
<td>5</td>
<td>DR07</td>
<td>RCBC</td>
<td>325-52.00</td>
<td>16.9</td>
<td>3098.7</td>
<td>3086.5</td>
</tr>
</tbody>
</table>

New Riprap Splash Pad
W/Geotextile MIRAFI or Equivalent
See Detail D.1

Gabian Basket Cut-off Wall

See Drainage Sheets

Outlet Protection - RCBC Splash Pad

Call at least two full working days
In Maricopa County: (602) 263-1100
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
Arizona Blue Stake, Inc.
Custom Headwall (60° RCP)

Notes:
1. See General Notes on ADOT Std DH 6.30 for more information.

For treatment of end of pipe see Chart on 50 6.30 (1 of 5).

Plumb

*4 @ 12"  *5 @ 18"

Constr. Jt. (Typ.)

*6 @ 12"

#4 @ 18"

#5 @ 18"

#5 Total 11

*6 Total 6

*5 Total 11

Each Face

For reinforcing at footing see SECTION A-A

SECTION A-A

SECTION B-B

ELEVATION

2:1 Shotcrete Channel Lining Slope

1:1 Shotcrete Channel Lining Slope

Joint

Joint

PLAN

SECTION A-A

SEE SECTION A-A FOR REINFORCING AT FOOTING

P L A N

S C A L E S:

P R O J . E N G .:

D E S I G N E D :

D R A W N :

D I V . E N G I N E E R:

R E V I S I O N D E S C R I P T I O N:

P O R T F O L I O:

D A T E:

D A T E:

D A T E:

P R I N T B LL:

S H E E T:

C O U N T R Y:

S H E E T:

P IM A C O U N T Y D E P A R T M E N T O F T R A N S P O R T A T I O N

T U C S O N , A Z 85705

W W W .P S O M A S .C O M

AS/C M

C Z

06-21

W I D E N I N G S O U T H O F I-1 0

C H E C K E D :

D R A F T F I N A L

06-21

06-21

06-21

15'

9'-6"  

9'-6"

9'

15'

1'-3"

1'-3"

1'-3"

5'-0"

6'-0"

1'-3"

6'-0"

9'-6"

1429

19'

9'-6"

15'

9'-6"

11-1/2"
Outlet Protection - RCBC Plunge Basin

**Section A**

Concrete Cutoff Wall
- Elev = 3089.4
- 18" thick
- Connect New Gabions to Existing Gabions

**Section B**

- New Gabions
- Elev = 3093.5
- Bottom of New Gabions
- Elev = 3089.4
- Top of New Gabions
- Elev = 3093.5

**Details**
- New Wire-tied Riprap
- 6Ex 6.4' or Equivalent
- W/Geotextile MIRAFI 1100 N

**Notes**
- Protect existing gabions around the power pole foundation.
- Connect new gabion baskets to existing gabions per manufacturer's specification.

**Important Information**
- Call at least two full working days before you begin excavation.
- Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100
- Arizona Blue Stake, Inc.

---

**SCALE**
- HORIZ: 1/1800
- VERT: 1/200

**Drawing Information**
- SHEET: 21-1
- PAGE: 28 of 238
- PROJECT: SOUTH HOUGHTON ROAD WIDENING SOUTH OF I-10

---

**Contact**
- 333 E. W. Temple Road, Suite 450
- Tucson, AZ 85705
- (520) 292-2300  (520) 292-1290  fax
- www.psomas.com
Outlet Protection - 18" Stormdrain Pipe

MIRAFI 180N or Equiv.
D50=6", T=1' w/ Geotextile
Dumped Riprap Splash Pad

18" RCP SLOPE PROTECTION
Stormdrain Plans B7, B9 and B10
See Stormdrain Plans

Before you begin excavation.
Call at least two full working days
In Maricopa County: (602) 263-1100
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
Arizona Blue Stake, Inc.
Sheet Culvert Type Roadway Culvert See Drainage Sheets Culvert Invert Elev Exst Ground Headwater Elevation 3' 3' H 6" V 6" W 6" 12" W

**Drop Inlet Dimension Table**

<table>
<thead>
<tr>
<th>Sheet</th>
<th>Size</th>
<th>Type</th>
<th>Station</th>
<th>N (Ft)</th>
<th>Y (Ft)</th>
<th>S</th>
<th>W (Ft)</th>
<th>Top of Up Elw</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1-10' x 5'</td>
<td>RCBC</td>
<td>178+76.00</td>
<td>5.6</td>
<td>2.8</td>
<td>20.0</td>
<td>3078.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1-10' x 5'</td>
<td>RCBC</td>
<td>184+00.00</td>
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<td>3.7</td>
<td>25.0</td>
<td>3075.00</td>
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<tr>
<td>10</td>
<td>2-6' x 4'</td>
<td>RCBC</td>
<td>188+21.00</td>
<td>10.0</td>
<td>5.0</td>
<td>25.0</td>
<td>3078.00</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2-10' x 5'</td>
<td>RCBC</td>
<td>196+00.00</td>
<td>7.4</td>
<td>3.7</td>
<td>25.0</td>
<td>3076.00</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2-10' x 5'</td>
<td>RCBC</td>
<td>216+56.00</td>
<td>5.0</td>
<td>2.5</td>
<td>15.0</td>
<td>3073.00</td>
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<tr>
<td>15</td>
<td>2-8' x 5'</td>
<td>RCBC</td>
<td>219+56.00</td>
<td>5.0</td>
<td>2.5</td>
<td>20.0</td>
<td>3073.00</td>
<td></td>
</tr>
</tbody>
</table>

**Detail E1**

Channel Grading - L-Shaped Headwall Inlet

---

**NOT FOR DRAFT FINAL**
* Channel backslope is 1:1 for culverts DRO1 and DRO5. No backslope transition is necessary at inlet areas.

### CURVING INLET DIMENSION TABLE

<table>
<thead>
<tr>
<th>No.</th>
<th>No.</th>
<th>Size</th>
<th>Type</th>
<th>Station</th>
<th>Site A</th>
<th>Site B</th>
<th>Site C</th>
<th>Site D</th>
<th>Site E</th>
<th>N (ft)</th>
<th>V (ft)</th>
<th>S (in/in)</th>
<th>W (ft)</th>
<th>Top of Lip Elev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DRO1</td>
<td>5-30&quot;</td>
<td>RCP</td>
<td>110+00.00</td>
<td>109+31.00, 61.57' R1</td>
<td>109+46.56, 62.31' R1</td>
<td>109+56.53, 62.31' R1</td>
<td>109+68.51, 56.33' R1</td>
<td>109+70.03, 54.31' R1</td>
<td>3.55</td>
<td>3.55</td>
<td>1:1</td>
<td>8.00</td>
<td>308.30</td>
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<tr>
<td>2</td>
<td>DRO3</td>
<td>3-8' x 4&quot;</td>
<td>RCBC</td>
<td>134+54.00</td>
<td>134+56.00, 58.88' R1</td>
<td>134+70.93, 70.15' R1</td>
<td>134+83.41, 70.15' R1</td>
<td>135+01.05, 62.83' R1</td>
<td>135+08.76, 55.15' R1</td>
<td>8.20</td>
<td>4.10</td>
<td>2:1</td>
<td>15.00</td>
<td>303.50</td>
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<tr>
<td>3</td>
<td>DRO4</td>
<td>2-60&quot;</td>
<td>RCP</td>
<td>159+65.00</td>
<td>159+08.00, 71.69' R1</td>
<td>n/a</td>
<td>159+11.80, 74.25' R1</td>
<td>159+58.29, 59.26' R1</td>
<td>159+40.51, 55.43' R1</td>
<td>8.40</td>
<td>4.20</td>
<td>2:1</td>
<td>15.00</td>
<td>300.20</td>
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<tr>
<td>4</td>
<td>DRO5</td>
<td>1-8' x 5&quot;</td>
<td>RCBC</td>
<td>141+12.79</td>
<td>141+74.00, 73.25' R1</td>
<td>n/a</td>
<td>141+73.55, 75.73' R1</td>
<td>141+90.00, 58.41' R1</td>
<td>141+90.07, 55.16' R1</td>
<td>6.60</td>
<td>4.60</td>
<td>1:1</td>
<td>15.00</td>
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<tr>
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<td>DRO6</td>
<td>3-8' x 5&quot;</td>
<td>RCBC</td>
<td>151+35.00</td>
<td>149+71.00, 72.43' R1</td>
<td>n/a</td>
<td>149+86.17, 74.92' R1</td>
<td>150+16.40, 57.40' R1</td>
<td>150+17.63, 55.43' R1</td>
<td>6.60</td>
<td>3.20</td>
<td>2:1</td>
<td>15.00</td>
<td>309.20</td>
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<tr>
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<td>DRO7</td>
<td>1-10' x 5&quot;</td>
<td>RCBC</td>
<td>151+62.00</td>
<td>151+25.00, 73.62' R1</td>
<td>n/a</td>
<td>151+27.59, 76.13' R1</td>
<td>151+51.74, 57.60' R1</td>
<td>151+52.42, 55.46' R1</td>
<td>4.60</td>
<td>4.60</td>
<td>1:1</td>
<td>2:1</td>
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<tr>
<td>7</td>
<td>DRO8</td>
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<td>RCP</td>
<td>154+00.00</td>
<td>153+61.00, 69.33' R1</td>
<td>153+75.94, 70.15' R1</td>
<td>153+94.59, 70.15' R1</td>
<td>154+02.69, 55.22' R1</td>
<td>154+02.71, 55.15' R1</td>
<td>4.00</td>
<td>2.00</td>
<td>2:1</td>
<td>15.00</td>
<td>309.00</td>
</tr>
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</table>

### Channel Grading - Curved Inlet

- **DETAIL E2**
- **North Channel**
- **South Channel**
- **No Ties For Draft Final**
**DOUBLE SIDED INLET DIMENSION TABLE**

<table>
<thead>
<tr>
<th>Sheet</th>
<th>Size</th>
<th>Type</th>
<th>Station</th>
<th>Site A</th>
<th>Site B</th>
<th>Site C</th>
<th>Site D</th>
<th>L (Ft)</th>
<th>W (Ft)</th>
<th>H (Ft)</th>
<th>V (Ft)</th>
<th>S (H/V)</th>
<th>Top of Lip Elev (Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-8 x 4'</td>
<td>RCBC</td>
<td>113+60.00</td>
<td>113+30.00, 69.61' RT</td>
<td>113+45.00, 69.61' RT</td>
<td>113+67.41, 69.61' RT</td>
<td>113+82.00, 63.38' RT</td>
<td>22.4</td>
<td>14</td>
<td>3.1</td>
<td>3.1</td>
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<td>316.00</td>
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<tr>
<td>6</td>
<td>3-10 x 5'</td>
<td>RCBC</td>
<td>166+75.00</td>
<td>166+55.00, 68.69' RT</td>
<td>166+69.98, 74.26' RT</td>
<td>167+06.42, 74.26' RT</td>
<td>167+21.50, 65.57' RT</td>
<td>56.5</td>
<td>25</td>
<td>8.8</td>
<td>4.4</td>
<td>2:1</td>
<td>3094.40</td>
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<tr>
<td>8</td>
<td>3-10 x 5'</td>
<td>RCBC</td>
<td>181+35.00</td>
<td>181+02.00, 79.64' RT</td>
<td>181+17.33, 80.00' RT</td>
<td>181+52.67, 80.00' RT</td>
<td>181+66.00, 78.40' RT</td>
<td>35.3</td>
<td>25</td>
<td>6</td>
<td>3</td>
<td>2:1</td>
<td>3076.80</td>
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<tr>
<td>10</td>
<td>4-10 x 5'</td>
<td>RCBC</td>
<td>192+58.00</td>
<td>192+20.00, 76.87' RT</td>
<td>192+35.00, 80.00' RT</td>
<td>192+65.00, 80.00' RT</td>
<td>192+96.00, 76.98' RT</td>
<td>46</td>
<td>25</td>
<td>5.6</td>
<td>2.8</td>
<td>2:1</td>
<td>3077.80</td>
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<tr>
<td>12</td>
<td>2-10 x 5'</td>
<td>RCBC</td>
<td>198+00.00</td>
<td>198+17.00, 74.31' RT</td>
<td>198+23.33, 75.00' RT</td>
<td>198+27.00, 72.92' RT</td>
<td>24.7</td>
<td>20</td>
<td>9</td>
<td>4.5</td>
<td>2:1</td>
<td>3076.20</td>
<td></td>
</tr>
</tbody>
</table>

*NOT FOR DRAFT FINA*
DETAIL E4
Channel Grading - 4:1 End Ramp

DETAIL E5
Channel Grading - 1:1 End Ramp

Note: Before you begin excavation, call at least two full working days in advance, and dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Arizona, or (602) 263-1100 in Maricopa County. Colored shotcrete should be used with a minimum of 2500 psi.
PLAN VIEW - TYPICAL CHANNEL NOTCH SIDE DRAIN

NOTCH LIMITS

Collector Channel Top of Bank

Slope 1:2 Top of Bank

Collector Channel Top of Bank

Collector Channel

NOTCH LIMITS

Collector Channel Top of Bank

6" Colored Shotcrete
Continuous Concrete Cut-Off Wall

Collector Channel Top of Bank

Concrete Cut-Off Wall

Collector Channel Top of Bank

Typical Collector Channel Top of Bank

Collector Channel

Typical Collector Channel Top of Bank

6" Colored Shotcrete
Continuous Concrete Cut-Off Wall

Collector Channel

SECTION A

Collector Channel

Top of Bank

Collector Channel

Top of Bank

Match Ext Wash

Flowline

Notch Limits

Top of Bank

Collector Channel

Notch Limits

6" Colored Shotcrete
Concrete 2500 psi min.

Width Match Ext Wash

Collector Channel

Top of Bank

Collector Channel

Top of Bank

CHANNEL GRADE - SIDE NOTCH

DETAIL E6

Channel Grading - Side Notch

PLAN VIEW - TYPICAL CHANNEL NOTCH SIDE DRAIN
1. Trim stormdrain pipe flush with channel slope.
2. Cut, clean, and bend WWR in shotcrete around stormdrain pipe.
3. Notch channel key-in around pipe as needed.
4. Reinforcing steel shall be Grade 60 (f' = 24,000 psi) and conform to AASHTO M 31 (ASTM A615) and PAG Std Spec 1003.
5. No. 5 rebar around stormdrain pipe shall overlap 18" as shown.
6. New stormdrain pipe punch through, materials, and labor, shall be considered incidental to the cost of the pipes.
Channel Grading - Combination Apron/Inlet (4-48° RCP)

**ELEVATION VIEW**
- Culvert Inlet & Cutoff Wall
- Apron per ADOT SD 6.30
- For 4" high boxes with modification of H=2'-8" for Wingwalls

**PLAN VIEW**
- Pipe Culvert Sta 230+20.00 Inlet Detail
- Top of Drop Inlet/Channel
- Apron per ADOT SD 6.30
- For 4" high boxes with modification of H=2'-8"

**NOTES**
- Before you begin excavation, call at least two full working days before excavation.
- Call 8-1-1 or 1-800-STAKE-IT (782-5348) for Arizona Blue Stake, Inc.
- During excavation, check with Arizona Blue Stake, Inc. for any underground utilities.

**Design Information**
- **Div. Engineer**: ANA M. ORILIAE, P.E., DIRECTOR
- **Check**: SOUTHWESTON ROAD AS/CAM
- **Checked**: ANA M. ORILIAE, P.E., DIRECTOR
- **Designed**: SOUTHWESTON ROAD AS/CAM
- **Drawn**: SOUTHWESTON ROAD AS/CAM

**Scales**
- Horiz.: 1" = 1'-0" (333 ft.)
- Vert.: 1" = 20'-0"

**Revision Description**
- 06-21

**Details**
- Lip of collector
- Shotcrete Inlet & Cutoff Wall
- Culvert Corer C
- Top of Lip
- Apron per ADOT SD 6.30
- For 4" high boxes with modification of H=2'-8"
TYPICAL SECTION - SHOTCRETE DROP INLET

Slope=S
250 psi min.
Shotcrete Drop Inlet
Centered in Concrete

DROP INLET DIMENSION TABLE

<table>
<thead>
<tr>
<th>Culvert</th>
<th>Size</th>
<th>Type</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>P9</td>
<td>3-36&quot;x24&quot;x134</td>
<td>HERCP</td>
<td>250+14.76</td>
</tr>
<tr>
<td>P10</td>
<td>3-32&quot;x24&quot;x124</td>
<td>CP</td>
<td>252+78.27</td>
</tr>
</tbody>
</table>

DETAIL E9
SHOTCRETE DROP INLET DETAIL
1. Hand placed Riprap shall be placed so that the surface of the riprap shall be no more than 1/2" below the surface of the adjacent MUP or Edge of Pavement.
2. See Channel Sheets for Hand-Placed Riprap (Item 9130007) & Dumped Riprap (Item 9130001) Locations.
TYPICAL UNDIVIDED SECTION
South Houghton Road
Dawn Road, Brekke Road
School Driveways

TYPICAL 4-LANE DIVIDED SECTION
South Houghton Road

TYPICAL UTILITY DRIVEWAY
Driveways 4-8
TEP Accomas Driveway West & East

TYPICAL SIDESTREET/SCHOOL DRIVEWAY
Driveways 1-3
Dawn Rd
Fairground Entrance S & N
Brekke Rd

1' beyond outside edge of Pave Lt & Rt

21  beyond outside edge of Pave

1' Offset
Follows Typical

1' beyond outside edge of Pave Lt & Rt

before you begin excavation.
Call at least two full working days
In Maricopa County: (602) 263-1100
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
Arizona Blue Stake, Inc.
before you begin excavation.

Call at least two full working days

In Maricopa County: (602) 263-1100
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

Arizona Blue Stake, Inc.

1 inch = 100 ft.
Install New Survey Monument with Frame and Cover
PAG S64 40 163
See ROW Plans for Section Corner Location Information

Corner Location Information

Install New Survey Monument with Frame and Cover
PAG S64 40 163
See ROW Plans for Section Corner Location Information
Install New Survey Monument with Frame and Cover
PAG Sta 003
See ROW Plans for Section Corner Location Information
before you begin excavation. Call at least two full working days in Maricopa County: (602) 263-1100 Dial 8-1-1 or 1-800-STAKE-IT (782-5348) Arizona Blue Stake, Inc.
Before you begin excavation, call at least two full working days in Maricopa County: (602) 263-1100. Dial 8-1-1 or 1-800-STAKE-IT (782-5348). Arizona Blue Stake, Inc.

1 inch = 100'

N 89°38'27" E

N 83°30'28" E

N 89°38'27" E

N 89°38'27" E

N 78°01'04"

52°88'22"

52°84'20"

N 89°38'27"

N 89°38'27"

52°84'20"

52°88'22"

N 89°38'27"

N 89°38'27"

N 89°38'27"

N 89°38'27"

52°84'20"

52°88'22"

52°88'22'
Demolition Notes Removal and Landscape

1. See Pavement Marking and Signing Plans for sign pavement obliterations and sign removals.

2. Clearing and Grubbing is paid under Item #2010001.

3. Item #2020001 includes all removals, shown or not shown, unless a separate pay item is indicated.

4. All water valve adjustments are shown on the roadway plans.

5. Site shall be treated for buffelgrass and other invasive species prior to initiation of work. See special provisions Section 201-5.04.

6. Contractor is responsible for the preservation of existing plant materials according to Special Provisions Section 201-02. Overhanging branches within the right-of-way that may impact construction shall be pruned in accordance with Special Provisions Section 201-3.05 and Item #2061700.

7. Existing trees on adjacent private property may have overhanging branches that will require pruning. See Special Provisions Section 201-3.05. No pruning shall be performed without the notification of the Engineer and Pima County Community Relations.

8. Where construction impacts existing landscape or irrigation encroachments within right-of-way, contractor shall coordinate required adjustments with Project Engineer.

9. Contractor is to install preservation fencing as directed by engineer prior to clearing. Locations shown on plans shall be adjusted in the field as required. Preservation fencing is to remain during the duration of the project. See Special Provisions.

10. Removal of all cacti and native plants shall be in accordance with the provisions of the "Arizona Native Plant Law, A.R.S. Chapter 7. Cacti under the protection of native plant laws will have been removed prior to construction. If, during construction, additional saguaro or barrel cacti will be impacted, contractor is to contact the Engineer prior to removal.
before you begin excavation. Call at least two full working days in Maricopa County: (602) 263-1100 Dial 8-1-1 or 1-800-STAKE-IT (782-5348) Arizona Blue Stake, Inc.
before you begin excavation. Call at least two full working days in Maricopa County: (602) 263-1100.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348) Arizona Blue Stake, Inc.
before you begin excavation. Call at least two full working days in advance.

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1 inch = 1'