

**CORRESPONDENCE REPORT
FOR
SKUNK CREEK CHANNEL IMPROVEMENTS**

FCD CONTRACT No. 95-38
90% SUBMITTAL

JANUARY, 1998

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Prepared for:
Flood Control District of Maricopa County
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Simons, Li & Associates, Inc.
Water Resources & Civil Engineering Consultants

December 29, 1997

Mr. R. W. Shobe
Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009

RE: SKUNK CREEK CHANNEL IMPROVEMENTS, FINAL DESIGN

Dear R.W.:

Enclosed are our responses to the written comments submitted to Simons, Li & Associates, Inc. (SLA) during the 60% design review for the above referenced project. Copies have been included for Gary Shapiro and Olin Sutton, Jr. of the District. In addition, a copy of the current scour summary table for toe-down depth is included for Mr. Shapiro. Please recall that horizontal aprons are being used to account for a portion of the required toe-down depth. A copy of this letter and the written responses are being sent to Mr. Dan Sherwood of Glendale.

Also enclosed for your information is a copy of the test pit logs and lab results for the soil samples taken at proposed grade control structures near 69th, 57th, and 54th Avenues, and at Station 245. This information should be included with the geotechnical report previously submitted. The results are consistent with the previous samples.

If you have any questions or require further information on the above, please do not hesitate to call me.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.

Bart S. Bergendahl, P.E.
Project Manager

BSB/ad

cc: Daniel A. Sherwood, P.E., City of Glendale

[PAZ-MC-17]
rwpw6.1:let23

SKUNK CREEK CHANNEL IMPROVEMENTS FINAL DESIGN

FCDMC Contract No. 95-38

SLA Project No. PAZ-MC-17

**RESPONSES TO WRITTEN COMMENTS FROM
60% PLAN REVIEW MEETING**

COMMENTS FROM DANIEL A. SHERWOOD

Phase I

Comment 1: We cannot close 54th and 57th Avenue at the same time during construction.

Response 1: This will be added as a general construction note on the Phase I project plans.

Comment 2: There is something wrong with the table on Sheet 9. $177 + 00 > 65.18 + 13.49 = 78.67$, $240 + 00 > 109.84 + 55, 48 = 165.32$, $256 + 00 > -34.02 + 57.98 = 23.96$. I don't understand.

Response 2: The offset table on Sheet 9 will be checked for accuracy.

Comment 3: What is the purpose for the ramp on the south side at Station 201 + 60?

Response 3: The south-side pedestrian trail ends at 59th Avenue. This ramp was provided at Glendale's request to allow west-bound pedestrians to cross the channel to the north side.

Comment 4: We need ramps to get the pedestrians, etc., under Union Hills Drive.

Response 4: The Flood Control District has directed SLA not to provide ramps if they require the removal of existing bank protection.

Comment 5: Need to show ramps 16, 17, and 18 on the plans.

Response 5: Ramp 16 is the grade control ramp at Station 233+00 and is shown on the plans. Ramps 17 and 18 are in the 55th Avenue channel and will require a separate plan and profile sheet. The details for Ramps 17 and 18 are shown on Sheet 31.

Comment 5a: What is the status of the hole on the north side of the creek, west of 51st Avenue? Is the Flood Control District going to purchase the property or construct the levee? I want to do the minimum levee for bank protection, if we don't buy the property, because I don't want to pay for all the developer's improvements.

Response 5a: The District is to provide final direction for the area west of 51st Avenue.

Comment 6: Is there a utility pole within the grading limits at the NE corner of Skunk Creek and the 55th Avenue Drainage Channel?

Response 6: Yes. However, the location of the bank protection will be adjusted to eliminate this as soon as the right-of-way limits are defined for the area.

Comment 7: What are the limits of the concrete removal at the 55th Avenue Drainage Channel?

Response 7: The limits of the concrete removal at the 55th Avenue Drainage Channel will be shown on the plan. The entire concrete/riprap mass will be removed.

Comment 8: The south side of the Creek has levees that will trap the water behind the levee, similar to the north side. How are we handling this?

Response 8: Levees are being eliminated where possible. Where this is not possible, the backside will be filled if the amount of fill is nominal and the existing channel bank is as high or higher than the proposed bank. If this is not the case, a culvert will be used to provide backside drainage to the channel. If the existing ground on the backside of the levee is lower than the design hydraulic grade line for the channel, a backflow prevention device will be included with the drainage culvert.

Phase II

Comment 9: What is the purpose of the ramp at 142 + 00? It is OK to leave.

Response 9: Ramp 6 is part of the requested pedestrian cross-over downstream of the proposed Arrowhead Meadows Park. Right-of-way restrictions would not allow the cross-over ramps to be located opposite one another. Because of the large distance between Ramp 6 and Ramp 8, it may be desirable to eliminate both these ramps and provide a single cross-over location at approximately Station 165. Ramp 7 is the requested equestrian ramp. Its location is also dictated by the restricted right-of-way.

Comment 10: When is a 10% ramp used, instead of a 5% ramp?

Response 10: A 10% grade is allowed for equestrians, while a 5% maximum is required by the American with Disabilities Act (ADA).

Comment 11: The levee will trap water on both sides of the Creek. This needs to be taken care of.

Response 11: See Response Number 8.

Comment 12: The ROW is not shown correctly on the south side of Skunk Creek, east of 67th

Avenue. The City purchased ROW in this area for the 67th Avenue Bridge Project and the owner is coming in for a plat to develop the rest of the property. We will not get any more ROW from what we now have.

Response 12: The right-of-way is as provided by the Flood Control District. This comment has been brought to their attention. We recommend Glendale coordinate further with them to determine a resolution.

Comment 13: There are 24" pipes shown through the levee at several locations adjacent to Sunset Vista. The pipe size is far too small on some of these locations. We have had problems in the past with the amount of water in the open channel that has washed away the concrete channel. Need to take a close look at whether we can leave these as open swales into the Creek, instead of pipes, especially at Station 163 + 70. Per the Sunset Vista drainage reports, the flows range between 69 and 89 cfs. Station 163 + 70 has over 100 cfs when adding the flow from the subdivision to the north.

Response 13: The size of these drainage pipes have not been finalized. We will design them in accordance with offsite drainage reports, when available.

Comment 14: I thought there were some existing gabions on the south side of the Creek, south of Union Hills Drive, that were in the wrong location making the Creek too narrow. I don't see any indication of this on the plans.

Response 14: The Master Plan identifies approximately 500 feet of existing bank protection to be removed in this area. However, the location of the existing bank protection, as depicted in the Master Plan, is wrong. The actual bank is located approximately 30 feet further east. This allows almost all the existing bank protection to be used.

Comment 15: We will need to complete the channel excavation downstream of the 67th Avenue Bridge.

Response 15: As shown on the plan and profile sheets, the channel invert is excavated downstream of 67th Avenue.

Comment 16: It appears there may be some federal money available for doing repair to bridges that are subject to scour. We have two bridges on Skunk Creek that have this problem: Bell Road and 59th Avenue. If we get MAG approval today, we will need to separate these bridges from the project and make them into a stand-alone project. The cost for the design and construction would be the City of Glendale's and would be deducted from our portion of the overall construction costs, reducing the \$1,900,000 City commitment. I will let everybody know later this week.

Response 16: No response necessary.

COMMENTS FROM OLIN S. SUTTON, JR.

Phase I

Comment 1: Sheet 13 - The 36" water line appears to be out of alignment. The 12" water line is not on the cross-section.

Response 1: The 36" water line will be adjusted in profile to match the plan view. The 12" waterline is attached to the bridge superstructure.

Comment 2: Sheet 14 - No Note for 10.

Response 2: The circled "10" will be eliminated.

Comment 3: Sheet 15 - 8" water line conflict.

Response 3: The estimated total scour elevation at this location is 1260.65, which is above the top of slurry elevation of 1259.0 for the water line. The top of apron elevation will be adjusted from 1259.2 to approximately 1256.7 to allow the gabion mattress to clear the top of the slurry.

Comment 4: Sheet 17 - 8" water line clearing by 2½'.

Response 4: This water line is being relocated by others in conjunction with the re-construction of the 54th Avenue dip crossing. The top of the pipe is to be buried a minimum of 6.8 feet below the invert elevation of 1271.6 at this location.

Comment 5: Sheet 23 - No note for 4.

Response 5: The circled "4" should be a 3.

Comment 6: Sheet 24 - No note for 4.

Response 6: The circled "4" should be a 3.

Comment 7: Sheet 25 - No note for 4.

Response 7: The circled "4" should be a 3.

Comment 8: Sheet 26 - No note for 4.

Response 8: The circled "4" should be a 3.

Phase II

Comment 9: Sheet 11 - 4 should be 3.

Response 9: This change will be made.

Comment 10: Sheet 13 - Horizontal view shows an 8" water and a 12" water. The vertical view shows a water and gas/sanitary sewer line.

Response 10: The profile (vertical) view shows water/gas, which are in the same trench, and a sanitary sewer line. The plan view will be modified to add a "gas" label at the water line location and include the sanitary sewer location.

Comment 11: Sheet 14 - The sewer on the horizontal view, is there a problem with it? It appears to sop at Station 101 + 00.

Response 11: This sewer continues westward without conflict. The plans will be modified to show this.

Comment 12: Sheet 15 - The 12" water not shown on the horizontal.

Response 12: The 12" water line will be added to the plan view.

Comment 13: Sheet 17 - Shows two 12" water on the horizontal and a 12" water and a SWG on the vertical.

Response 13: The west 12" water line has been abandoned. The plans will be modified to show the correct utilities and their locations.

COMMENTS FROM GARY SHAPIRO

PHASE I

Comment 1: The project control is still not established. Discrepancies have been noted. Due to the unsymmetrical and curvilinear nature of the Channel, both the North and South Banks will need to be laid-out with bearings, radii, distances, points-of-intersection, deltas, coordinates, etc. This can be accomplished on the geometric control sheet.

Response 1: Project control is provided by a single control line down the approximate center of the channel. Control lines for both the north and south bank were provided with the 30% submittal, but were eliminated, as directed by the Project Manager.

Comment 2: Right-of-way still remains to be a problem and has not been fully incorporated into the plan views. Rights-of-ways will also require geometric layout. It is essential that the project controls and rights-of-way be well established.

Response 2: Right-of-way is to be provided by the District.

Comment 3: Scour calculations need to be submitted. Verification of toe-down depth for both the grade control structures and bank protections are necessary.

Response 3: A current scour calculation summary table will be provided. The final scour calculations, toe-down depths, and other supporting information will be submitted upon completion of all analyses as part the final design report, as requested by the project manager. The design criteria used, as well as the analytical methods and procedures, are described and demonstrated in the draft design report.

Comment 4: Do not show the project beyond the match lines.

Response 4: Project information which extends beyond the match lines will be eliminated.

Comment 5: Items that are to be constructed shall stand out (bold) from the existing.

Response 5: All construction features will be shown with a bold line weight, as requested.

Comment 6: All the grade control ramps are buried or below invert. Please explain this concept.

Response 6: As long-term degradation and local scour occurs downstream of the proposed grade control structures a drop may develop, which cannot be negotiated by equestrians or maintenance vehicles. The buried ramps will provide a passageway around the drop.

Comment 7: Drainage behind the levee still needs to be shown and addressed.

Response 7: The major drainage-ways behind berms or levees have been identified, however, the design has not been finalized. As requested, levees are being eliminated where possible. Where this is not possible, the backside will be filled if the amount of fill is nominal and the existing channel bank is as high or higher than the proposed bank. This will eliminate the backside drainage concern. If this is not the case, a culvert will be used to provide backside drainage to the channel. If the existing ground on the backside of the levee is lower than the design hydraulic grade line for the channel, a backflow prevention device will be included with the drainage culvert.

Comment 8: Cross-sections need to show existing banks where existing banks remain.

Response 8: The cross-sections extend to the limit of the available mapping.

Comment 9: Throughout the plans, it is unclear and confusing as to whether or not the existing bank is to remain or be replaced, especially around the grade control structures.

Response 9: The cross-sections provide this information every 100 feet along the channel. The grade control structure sheets provide this information at each grade control structure. The existing bank protection which remains and that to be removed will be clarified.

Comment 10: Elevations and offsets are conflicting throughout the plans. Cross-section, plan and profiles, details need to correspond with each other and have the same elevations and dimensions.

Response 10: The inconsistencies that may be present within the plan set are due to the continuing design adjustments being made in different areas at different times. The 60% plans reflect the status of the design and all changes being made at the time of submittal. As the design continues to evolve the conflicts will be eliminated and reflect the final analysis.

Sheet 4

Comment 11: The benchmark for 75th Avenue seems quite far to be used for this phase of the project. Isn't there another benchmark closer to this phase of the project that can be used?

Response 11: We will investigate using another bench mark, such as the one at 51st Avenue and Union Hills Drive.

Comment 11a: Please re-check bearings and deltas. Assuming the coordinates are correct, the calculations for bearings are a bit different than what is indicated on the geometric control sheet.

Response 11a: The bearings and deltas will be re-checked, as requested.

Comment 11b: Tangent lengths appear to be hurting. Please re-check and make the necessary corrections.

Response 11b: The tangent lengths will be re-checked, as requested.

Sheets 5-10

Comment 12: No comment at this time.

Response 12: No response required.

Sheet 11

Comment 13: The plans indicate that this reach is to be undisturbed, while the cross-sections indicate a design invert. Please make the necessary corrections.

Response 13: This area will be disturbed for construction of the drop structure. The design invert will match the existing invert upstream of the drop structure. This will be clarified.

Comment 13a: The hydraulic grade line is indicating a drop at Station 179 + 50, yet there is no drop condition indicated in the profile at this Station.

Response 13a: The design invert downstream of Station 179+50 happens to be nearly coincident with the toe-down line of the existing bank protection. This will be clarified.

Comment 13b: If there is a drop, the placement of appropriated-sized riprap may be required to reduce the scour potential and help dissipate energy.

Response 13b: The downstream toe of the drop structure has been located at the estimated total scour depth to preclude the need for riprap.

Comment 13c: The proposed toe-down for the bank protection should be the same depth as the toe-down for the grade control structure. This should be shown in bold.

Response 13c: The toe-down of the existing bank protection will be extended to the toe-down of the drop structure. This will be shown in bold.

Sheet 12

Comment 14: The plans indicate that this reach is to be undisturbed, while the cross-sections indicate a design invert. Please make the necessary corrections.

Response 14: The existing gabion aprons will be extended horizontally between Union Hills and 59th Avenue. This will be shown and the design invert will be adjusted to match the existing invert.

Comment 14a: Please provide scour calculations. The toe-down of 2-3 feet may not be adequate within this reach.

Response 14a: The existing 2-3 foot toe-down is not adequate in this reach. The existing gabion aprons will be extended horizontally between Union Hills and 59th Avenue. A current scour calculation summary will be provided. The final scour calculation summary will be included in the final design report.

Comment 14b: Identify the hydraulic grade line, drainage behind the levee, and right-of-way.

Response 14b: The hydraulic grade line will be labeled. No modification of the existing levees is expected in this reach. The drainage characteristics behind the existing levees will not be altered from existing. The right-of-way is identified as provided by the District.

Sheet 13

Comment 15: Identify drainage behind the levee, right-of-way, and contractor's staging area. Grade control ramp is below invert.

Response 15: No modification of the existing levees is expected in this reach. The drainage characteristics behind the existing levees will not be altered from existing. The right-of-way is identified as provided by the District. The contractor's staging areas are identified on Sheet 10 and will be noted on Sheet 13 as requested. The grade control ramp is below the invert as intended (see Response 6).

Sheet 14

Comment 16: The hydraulic grade line is shown above the top-of-bank. Make the necessary corrections.

Response 16: The top of the north bank was inadvertently omitted. This will be corrected.

Comment 16a: Identify the right-of way, drainage behind the levee, contractor's staging area. Grade control ramp is below invert.

Response 16a: The drainage behind any berm or levee will handled as described in Response 7. The right-of-way is identified as provided by the District. The contractor's staging areas are identified on Sheet 10 and will be noted on Sheet 14 as requested. The grade control ramp is below the invert as intended (see Response 6).

Comment 16b: Please justify the difference between upstream and downstream toe-downs for the grade control structure (seems excessive).

Response 16b: The downstream toe-down reflects the future drop scour that will develop due to long-term channel degradation. Drop scour will not occur on the upstream side, therefore, the upstream toe-down is not as deep.

Sheet 15

Comment 17: Identify right-of-way and drainage behind levee.

Response 17: The right-of-way is identified as provided by the District. Since the water surface is below the existing bank, a levee condition does not exist. If the area behind the bank protection terminal at Station 218 cannot be graded to drain, a culvert will be provided through the berm. The final top of bank elevations are currently being identified.

Sheet 16

Comment 18: Identify right-of-way and drainage behind levee.

Response 18: The right-of-way is identified as provided by the District. Since the water surface is below the existing bank, a levee condition does not exist. The area behind the berm around Station 224 will be filled and graded to drain over the proposed bank.

Sheet 17

Comment 19: Please identify if 55th Avenue is a dead-end road or a dip-crossing.

Response 19: The label will be modified to read, "55th Avenue Channel."

Comment 19a: Identify contractor's staging area.

Response 19a: The contractor's staging areas are identified on Sheet 10. A note will be included on Sheet 17 as requested.

Comment 19b: Drainage behind levee needs to be identified.

Response 19b: Since the water surface is below the existing bank, a levee condition does not exist. If the areas behind the bank protection cannot be graded to drain, a culvert will be provided through the berm. The final top of bank elevations are currently being identified.

Comment 19c: The ramp is buried.

Response 19c: See Response 6.

Comment 19d: The 8" water line is drawn not to scale, appears to be 6 feet.

Response 19d: The scale for the 8" water line will be corrected.

Comment 19e: Will pavement replacement be required at 54th Avenue dip-crossing?

Response 19e: The bank protection terminals are designed to avoid the existing roadways at all dip crossings. No pavement replacement is necessary.

Comment 19f: Do not show project beyond the match lines.

Response 19f: Project information beyond the match lines will be removed.

Comment 19g: Explain the temporary construction easement.

Response 19g: The temporary construction easement in this areas will be required to excavate the landfill material below the north bank. The location of this easement, as well as all others, is not final and is subject to change.

Sheet 18

Comment 20: Drainage behind levee needs to be identified.

Response 20: Given the recent decision to build the levee, beginning approximately at Station 246, local drainage will be provided through it. If the areas behind any bank protection berm cannot be graded to drain, culverts will be provided as required. The final top of bank elevations are currently being identified.

Comment 20a: The bank protection is beyond the shown right-of-way.

Response 20a: The bank protection extends beyond the available right-of-way at the terminals for 54th Avenue and other dip crossings. The District has been provided with the locations where this occurs.

Comment 20b: Do not show project beyond match lines.

Response 20b: Project information beyond the match lines will be removed.

Sheet 19

Comment 21: Identify right-of way.

Response 21: The right-of-way is identified as provided by the District.

Comment 21a: Do not show project beyond match lines.

Response 21a: Project information beyond the match lines will be removed.

Comment 21b: At Station 256 + 00, it is indicated that the project ends, yet on Sheets 4 and 44, the project goes to Station 261 + 00. Please be consistent.

Response 21b: Given the decision to build a levee between approximate Stations 245 and 255, the exact end-of-project station can now be determined. Once determined, Sheets 4 and 44 will be adjusted accordingly.

Sheets 20 - 22

Comment 22: No comment at this time.

Response 22: No response required.

Sheet 23

Comment 23: Move plan view to show entire grade control structure.

Response 23: The plan view shows the entire grade control structure.

Comment 23a: Show bank protection for both sides.

Response 23a: Existing bank protection is shown in plan. Additional gabion mattresses will be shown in bold. This will be added in cross-section for clarification.

Comment 23b: A grade control structure control line is not needed.

Response 23b: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Sheet 24

Comment 24: Elevations of the grade control structure do not match that of Sheet 33.

Response 24: The elevations for the grade control structure require further adjustment. The final elevations on Sheets 24 and 33 will match.

Comment 24a: A grade control structure control line is not needed.

Response 24a: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Sheet 25

Comment 25: The bank protection should go down to the toe of the grade control structure.

Response 25: The bank protection on the north bank will be extended to the toe of the grade control structure in plan. This will be shown in cross-section also.

Comment 25a: A grade control structure control line is not needed.

Response 25a: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Comment 25b: Elevations do not match Sheet 33.

Response 25b: The elevations for the grade control structure require further adjustment. The final elevations on Sheets 25 and 33 will match.

Sheet 26

Comment 26: A grade control structure control line is not needed.

Response 26: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Comment 26a: Elevations do not match Sheet 33.

Response 26a: The elevations for the grade control structure require further adjustment. The final elevations on Sheets 26 and 33 will match.

Comment 26b: Is this really 69th Avenue?

Response 26b: The roadway dip crossing is 54th Avenue. The label will be corrected.

Sheet 27

Comment 27: No comment.

Response 27: No response required.

Sheet 28

Comment 28: Ramp 11 - is there a drop or not?

Response 28: There is a drop at Ramp 11. The details will be clarified to show this.

Comment 28a: Access ramps can be at 10% for disabilities and vehicles.

Response 28a: Access ramps can be no greater than 5% for the disabled. The grades for ramps downstream of grade control structures reflect the drop scour estimate for that structure.

Comment 28b: Is "F2" the channel invert? Ramp 11 elevations are indicated at 1243+/- and the cross-sections are indicated at 1240+/- . Please make necessary corrections.

Response 28b: "F2" is the channel invert. Ramp 11 invert elevations will be adjusted to reflect the drop downstream of grade control, as requested.

Comment 28c: Is "F1" the same as "A"? Ramp 11 offsets are indicated in the 80's, yet Sheets 9 and 11 show top-of-bank at 106+/- feet. Please make the necessary corrections.

Response 28c: "F1" is the top of bank elevation - same as "A." Ramp 11 offsets will be checked against the offset table and corrected as requested.

Comment 28d: Does the project start at Station 177+00 or at Stations 176+63?

Response 28d: The project start is currently at Station 177+00. The end of Ramp 11 will be adjusted accordingly.

Sheet 29

Comment 29: Ramps can be at 10%.

Response 29: A 10% ramp downstream of a grade control structure would terminate in the estimated local scour hole. The design grades for these ramps span the estimated length of the local scour hole for that structure.

Comment 29a: Turn-arounds may be required where ramps meets path.

Response 29a: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom.

Sheet 30

Comment 30: Are these buried ramps (15 and 16) needed. Please explain concept.

Response 30: Yes these ramps are needed. As long-term degradation and local scour occurs downstream of the proposed grade control structures a drop may develop, which cannot be negotiated by equestrians or maintenance vehicles. The buried ramps will provide a passageway around the drop.

Sheet 31

Comment 31: Ramps 17 and 18 may need turn-arounds where ramps meets path. These ramps can be at 10% slope for vehicles and disabilities.

Response 31: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom. A 10% ramp downstream of a grade control structure would terminate in the estimated local scour hole. The design grades for these ramps span the estimated length of the local scour hole for that structure.

Comment 31a: Ramps 17 needs to be 15' in width.

Response 31a: A 15' width is preferred. A 10' width is the minimum allowable.

Sheet 32

Comment 32: No comment.

Response 32: No response required.

Sheet 33

Comment 33: Why duplicate "Typical grade control structure" and "Gabion grade control structure bank connection" (see Sheet 32).

Response 33: The "typical grade control structure" will be used as a key for the grade control structure schedule. The duplicate "gabion grade control structure bank connection" will be eliminated.

Comment 33a: The grade control structure schedule is inconsistent with information on Sheets 24, 25, and 26. Please make the necessary corrections.

Response 33a: The elevations for the grade control structures require further adjustment. The final information on Sheets 24, 25, and 26 will match.

Sheet 34

Comment 34: No comment.

Response 34: No response required.

Sheet 35

Comment 35: Sheets A3, A6, A7, and A8 are unclear because there are no sheets numbered in that fashion. Please correct.

Response 35: This will be corrected, as requested.

Comment 35a: What is the one-to-one slope?

Response 35a: The 1:1 slope is in the riprap trench at the culvert outlets.

Sheet 36 - 37

Comment 36: Show existing banks.

Response 36: The existing bank protection will be shown, as implied.

Sheet 38

Comment 37: Are there new banks at Stations 197, 198 and 199? Show existing banks.

Response 37: The existing bank protection will be shown, as implied. The existing bank protection will be modified at these stations to accommodate the ramps and grade control structure defined by the detail sheets.

Sheet 39

Comment 38: Show existing banks.

Response 38: The existing bank protection will be shown, as implied.

Sheet 40

Comment 39: Are you sure there is bank protection at 57th Avenue for Stations 216 and 217?

Response 39: The bank protection is on the terminal at 57th Avenue. The cross-sections will be adjusted to clarify this.

Sheet 41

Comment 40: Are you sure there is bank protection at 55th Avenue for Station 228?

Response 40: The bank protection is on the terminal for the 55th Avenue channel. The cross-sections will be adjusted to clarify this.

Comment 40a: Are you sure there is bank protection at 54th Avenue for Station 234 and 235?

Response 40a: The bank protection is on the terminals for 54th Avenue. The cross-sections will be adjusted to clarify this.

Comment 40b: Check toe down elevations, Stations 232 and 233, 1264 or 1258?

Response 40b: The toe-down at cross-section Station 232 will be adjusted to reflect the local scour elevation of 1258 downstream of the grade control structure. Cross-section Station 233 will be adjusted to reflect the grade control structure.

Sheet 42

Comment 41: Are you sure about bank protection at 54th Avenue for Stations 236 and 237?

Response 41: The bank protection is shown on the terminal sheets for 54th Avenue. The cross-sections will be adjusted accordingly.

Comment 41a: Show existing bank protection.

Response 41: The existing south bank protection will be shown, as requested.

Sheet 43

Comment 42: Show existing bank protection.

Response 42: The existing south bank protection will be shown, as requested.

Sheet 44

Comment 43: Does project end at Station 256? What happens from Stations 256 to 261?

Response 43: No. An additional equestrian ramp will be located upstream of Station 256. The exact location is to be determined. This was not in the design at the time of the 60% submittal. The end-of-project station will be changed accordingly.

PHASE II

Sheet 4

Comment 44: The benchmark for 59th Avenue seems quite far to be used for this phase of the project. Isn't there another benchmark closer to this phase of the project that can be used?

Response 44: We will investigate using an additional bench mark, such as the quarter corner on 67th Avenue and Union Hills Drive.

Comment 44a: Please re-check bearings and deltas. Assuming the coordinates are correct, the calculations for bearings are a bit different than what is indicated on the geometric control sheet.

Response 44a: The bearings and deltas will be re-checked, as requested.

Comment 44b: Tangent lengths appear to be hurting. Please re-check and make the necessary corrections.

Response 44b: The tangent lengths will be re-checked, as requested.

Sheets 5-10

Comment 45: No comment at this time.

Response 45: No response required.

Sheet 11

Comment 46: The hydraulic grade line at Station 74 + 00 does not agree with cross-sections.

Response 46: The elevation of hydraulic grade line will be adjusted on both the profile and cross-section at Station 74+00 to reflect the final analysis.

Comment 46a: Do not show project beyond match lines.

Response 46a: Project information will be eliminated beyond the match lines, as requested.

Comment 46b: Phase II begins at what Station?

Response 46b: Phase II begins at Station 73+77. This will be clarified.

Comment 46c: Number 4 toe of back slope, cross-sections show cut. Please make necessary corrections.

Response 46c: Note 4 will be eliminated.

Comment 46d: In the Profile, change 4 to 3.

Response 46d: Note 4 will be changed to 3, as requested.

Sheet 12

Comment 47: Check top-of-bank and hydraulic grade line. They appear to be plotted incorrectly.

Response 47: The top-of-bank and hydraulic grade lines will be checked, as requested.

Comment 47a: Show the 12-inch storm drain in the profile, and show the right-of-way within this area.

Response 47a: The 12-inch storm drain will be shown in the profile, as requested. The right-of-way is shown as provided by the District.

Comment 47b: Drainage behind the levee needs to be addressed.

Response 47b: There is no levee along this reach of the channel. Drainage will be handled as described in Response 7.

Sheet 13

Comment 48: Ramps can be at 10% of slope.

Response 48: Levee access ramps can be no greater than 5% for the disabled. The grades for ramps downstream of grade control structures reflect the drop scour estimate for that structure.

Comment 48a: Turnarounds may be needed where the levee ramp meets the path.

Response 48a: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom.

Comment 48b: Drainage for the southwest side of Bell Road?

Response 48b: The proposed top-of-bank will match the existing. No drainage is required. The existing ground at the top of the north bank will be adjusted to reflect this.

Comment 48c: Do not show project beyond match lines.

Response 48c: Project information will be eliminated beyond the match lines, as requested.

Sheet 14

Comment 49: Right-of way problems, please rectify.

Response 49: The right-of-way is shown as provided by the District. The north bank alignment will be adjusted to reflect the recently completed bank protection project.

Comment 49a: Turnaround where ramp meets path.

Response 49a: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom.

Comment 49b: Drainage at Station 103 + 50, east side?

Response 49b: A culvert will be provide for the backside drainage at this location.

Comment 49c: Do not show project beyond match lines.

Response 49c: Project information will be eliminated beyond the match lines, as requested.

Sheet 15

Comment 50: Right-of-way needs to be corrected at 69th Avenue.

Response 50: The right-of-way is shown as provided by the District.

Comment 50a: Do not show project beyond match lines.

Response 50a: Project information will be eliminated beyond the match lines, as requested.

Comment 50b: A drop structure may require some dumped riprap to aid in the dissipation of energy. Also, the hydraulic grade line may drop as well. Please check.

Response 50b: The downstream toe of the drop structure has been located at the estimated total scour depth to preclude the need for riprap. The hydraulic grade line will be checked, as requested.

Sheet 16

Comment 51: Do not show project beyond match lines.

Response 51: Project information will be eliminated beyond the match lines, as requested.

Comment 51a: Drainage behind the levee.

Response 51a: No levee is required. The design invert is being lowered in this area. Drainage will be provided through the berm, if required by the final top-of-bank elevation.

Comment 51b: Buried ramp?

Response 51b: As long-term degradation and local scour occurs downstream of the proposed grade control structures a drop may develop, which cannot be negotiated by equestrians or maintenance vehicles. The buried ramps will provide a passageway around the drop.

Comment 51c: At Station 127, the invert does not match the cross-section. Please make the necessary corrections.

Response 51c: The elevation of the invert at Station 127 on both the profile and cross-section sheets will match to reflect the final design.

Sheet 17

Comment 52: It appears as though there is a freeboard problem. Please explain.

Response 52: The top of existing soil cement is shown as depicted in the design plans for the 67th Avenue crossing. As-built survey shots have been taken of the recently completed soil cement and the top-of-bank elevations will be adjusted accordingly. Hopefully, the grade control structure downstream of the crossing can be adjusted to provide the required freeboard through this area.

Comment 52a: Are there, or should there be, turn backs at 67th Avenue?

Response 52a: There are no turn-backs in the existing soil cement ramps and none are required.

Comment 52b: Do not show project beyond match lines.

Response 52b: Project information will be eliminated beyond the match lines, as requested.

Sheet 18

Comment 53: Drainage behind levee needs to be identified.

Response 53: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, any drainage concerns. Backside drainage will be handled as described in Response 7.

Comment 53a: Back slope and right-of-way problems exist.

Response 53a: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, the backslope and right-of-way concerns.

Comment 53b: Do not show project beyond match lines.

Response 53b: Project information will be eliminated beyond the match lines, as requested.

Comment 53c: Turnaround may be needed where ramp meets path.

Response 53c: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom.

Comment 53d: Ramp can be at a 10% slope.

Response 53d: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Comment 53e: At Station 146 + 50 +/- right-of-way and drainage need to be corrected.

Response 53e: The right-of-way is shown as provided by the District. The District has indicated that the apparent conflict is an available drainage easement.

Sheet 19

Comment 54: Do not show project beyond match lines.

Response 54: Project information will be eliminated beyond the match lines, as requested.

Comment 54a: At Stations 150 + 00 and 155 + 00, right-of way and drainage need to be corrected.

Response 54a: The right-of-way is shown as provided by the District. The District has indicated that the apparent conflicts are an available drainage easement.

Comment 54b: Back slope and right-of-way may present some problem.

Response 54b: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, the backslope and right-of-way concerns.

Comment 54b: Drainage behind levee needs to be addressed.

Response 54b: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, any drainage concerns.

Sheet 20

Comment 55: At Station 158 + 00 and 163 +50, right-of-way and drainage need to be corrected.

Response 55: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, the right-of-way and drainage concerns.

Comment 55a: Drainage behind levee needs to be addressed.

Response 55a: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, the drainage concerns.

Comment 55b: The back slope at the street may present a problem and needs to be rectified.

Response 55b: The design invert is being lowered in this area to minimize or eliminate the need for a berm, and therefore, the backslope concern.

Comment 55c: The ramp can be at a 10% slope.

Response 55c: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Sheet 21

Comment 56: The ramp can be at a 10% slope.

Response 56: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Comment 56a: Is there any salvage of riprap from gabions that can be used for the new bank protection?

Response 56a: The rock within existing gabions that must be removed may be used for the new gabion bank protection if it meets the specifications.

Comment 56b: Is toe-down to be added to the existing bank. Please clarify.

Response 56b: Toe-down is being added to existing gabion bank protection where the scour analysis indicates. The addition is shown with a bold line-weight.

Sheets 22 and 23

Comment 57: No comment.

Response 57: No response required.

Sheet 24

Comment 58: Dimension grade control structure.

Response 58: The grade control structure is dimensioned on detail sheet 34.

Comment 58a: No apron in profile? Apron in plan.

Response 58a: There is no apron in the cross-section (profile). The upstream and downstream aprons transition to side slope protection adjacent to the grade control structure at the toe-down elevation. This will be clarified in plan.

Sheet 25

Comment 59: The bank protection should go down to the toe of the grade control structure.

Response 59: The bank protection will go down to the toe of the grade control structure.

Comment 59a: A grade control structure control line is not needed.

Response 59b: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Comment 59b: Dimension grade control structure.

Response 59b: The grade control structure is dimensioned on detail sheet 34.

Sheet 26

Comment 60: The bank protection should go down to the toe of the grade control structure.

Response 60: The bank protection will go down to the toe of the grade control structure.

Comment 60a: A grade control structure control line is not needed.

Response 60a: A grade control structure control line allows offsets to the upstream and downstream break points, such as toe-down at channel bank, to be identified.

Comment 60b: Dimension grade control structure.

Response 60b: The grade control structure is dimensioned on detail sheet 34.

Sheet 27

Comment 61: No comment.

Response 61: No response required.

Sheet 28

Comment 62: Access ramps can be at 10% for disabilities and vehicles.

Response 62: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Comment 62a: Ramp should be 15 feet in width.

Response 62a: A pedestrian ramp width of 10 feet is in accordance with the Master Plan.

Comment 62b: Path should be 15th feet in width.

Response 62a: A pedestrian path width of 10 feet is in accordance with the Master Plan.

Comment 62c: Are turnarounds needed for vehicles?

Response 62c: Ramps to the top of bank are intended for pedestrians only, therefore, turn-arounds are not required. Maintenance vehicles are to be restricted to the channel bottom.

Sheet 29

Comment 63: Ramps can be at 10%.

Response 63: A 10% ramp downstream of a grade control structure would terminate in the estimated local scour hole. The design grades for these ramps span the estimated length of the local scour hole for that structure.

Sheet 30

Comment 64: Ramps can be at 10%.

Response 64: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Sheet 31

Comment 65: Ramps can be at 10% slope for vehicles and disabilities and 15 feet in width.

Response 65: Pedestrian ramps are to meet the ADA maximum slope of 5%. A pedestrian ramp width of 10 feet is in accordance with the Master Plan.

Sheet 32

Comment 66: Ramps can be at 10%.

Response 66: Pedestrian ramps are to meet the ADA maximum slope of 5%.

Sheet 33

Comment 67: No comment.

Response 67: No response required.

Sheet 34

Comment 68: Why duplicate, "Typical grade control structure", and "Gabion grade control structure bank connection"? (See Sheet 33).

Response 68: The "typical grade control structure" will be used as a key for the grade control structure schedule. The duplicate "gabion grade control structure bank connection" will be eliminated.

Comment 68a: The grade control structure schedule is inconsistent with information on Sheets 24, 25, and 26. Please make necessary correction.

Response 68a: The elevations for the grade control structures require further adjustment. The final information on Sheets 24, 25, and 26 will match.

Sheet 35

Comment 69: No comment.

Response 69: No response required.

Sheet 36

Comment 70: Sheets A3, A6, A7, and A8 are unclear because there are no sheets numbered in that fashion. Please correct.

Response 70: This will be corrected, as requested.

Comment 70a: What is the one-to-one slope?

Response 70a: The 1:1 slope is in the riprap trench at the culvert outlets.

Sheet 37

Comment 71: There is 5 feet of freeboard. Only 1 foot is required when incised and 3 feet when in a levee condition. Please explain.

Response 71: The existing freeboard exceeds that required by the District. Gabions will be provided to the required freeboard elevation only.

Sheet 38

Comment 72: Freeboard needs to be checked (5 - 6 feet?).

Response 72: The existing freeboard exceeds that required by the District. Gabions will be provided to the required freeboard elevation only.

Sheet 39

Comment 73: Show existing banks differently than new banks.

Response 73: Existing banks are shown with a dashed line. New banks are solid. Existing bank protection will be clarified.

Comment 74: Are you sure there is bank protection at Stations 93, 94 and 95?

Response 74: A recently completed project provided bank protection along the north bank between Bell Road and the 71st Avenue Channel (Station 94 to 100).

Comment 75: 9-, 8-, and 10-feet of freeboard?

Response 75: The existing freeboard exceeds that required by the District. Gabions will be provided to the required freeboard elevation only.

Comment 76: Show ramps at Stations 97 and 98.

Response 76: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Sheet 40

Comment 77: Are you sure there is bank protection at Station 101?

Response 77: The bank protection is part of the terminal detail for the 71st Avenue Channel.

Comment 78: 9-feet of freeboard?

Response 78: The existing freeboard exceeds that required by the District. Gabions will be provided to the required freeboard elevation only.

Comment 79: Profile sheets show 9-feet of toe-down while the cross-sections show 3-feet of toe-down. Please make necessary corrections.

Response 79: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis.

Sheet 41

Comment 80: Are you sure there is bank protection at Station 112?

Response 80: The bank protection is part of the terminal detail for the 69th Avenue dip crossing.

Comment 80a: Check toe-down elevations with profile and make necessary corrections.

Response 80a: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis.

Comment 80b: 8-feet of freeboard?

Response 80b: The existing freeboard exceeds that required by the District. Gabions will be provided to the required freeboard elevation only.

Comment 80c: Back slope of 1.5:1 at Stations 111 and 112? Might hold, but is in disagreement with FCD standards. Why not 3:1?

Response 80c: The 1.5:1 back-slope is an attempt to stay within the District's right-of-way, as requested by the Project Manager. This slope is stable according to our geotechnical subconsultant (see report). Additional right-of-way has been requested for this area.

Comment 80d: Ramp should be shown.

Response 80d: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Sheet 42

Comment 81: Toe-downs need to be compared with profiles. Station 123 shows 8-feet of toe-down and profile shows 4-feet of toe-down. Station 125 shows 8-feet of toe-down and profile shows 18-feet of toe-down.

Response 81: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis.

Comment 81a: Show ramps in cross-sections that are applicable.

Response 81a: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Comment 81b: Invert elevations should match with profile. Example: Station 127.

Response 81b: Both the profile and cross-section sheets will be adjusted to provide the invert elevations used in the final analysis.

Comment 81c: Show existing bank protection.

Response 81c: The existing bank protection will be shown as requested.

Sheet 43

Comment 82: Show existing bank protection.

Response 82: The existing bank protection will be shown as requested.

Comment 82a: Check toe-downs with profile and make the necessary corrections.

Response 82a: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis.

Sheet 44

Comment 83: Back slopes of 1.5:1 might hold but conflict with FCD standards.

Response 83: The 1.5:1 back-slope is an attempt to stay within the District's right-of-way, as requested by the Project Manager. This slope is stable according to our geotechnical subconsultant (see report).

Comment 83a: Show ramp for Stations 141 and 142.

Response 83a: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Sheet 45

Comment 84: Back slopes of 1.5:1 might hold but conflict with FCD standards.

Response 84: The 1.5:1 back-slope is an attempt to stay within the District's right-of-way, as requested by the Project Manager. This slope is stable according to our geotechnical subconsultant (see report).

Comment 84a: Show ramps for Stations 152 and 153.

Response 84a: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Comment 84b: Two - three feet of toe-down appears to be inadequate. Please check.

Response 84b: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis. In addition to toe-down depth, a horizontal apron is provided for the required scour protection.

Sheet 46

Comment 85: Two - three feet of toe-down appears to be inadequate. Please check.

Response 85: Both the profile and cross-section sheets will be adjusted to provide the toe-down required by the final analysis. In addition to toe-down depth, a horizontal apron is provided for the required scour protection.

Comment 85a: Back slopes on cross-sections do not agree with plan views. Example: Stations 167 to 169. Please check and make the necessary corrections.

Response 85a: The invert is being adjusted in this area. Both the profile and cross-section sheets will be revised to provide the back-slope required by the final analysis.

Comment 85b: Show ramps for Stations 167 and 169.

Response 85b: These ramps will be shown, as requested, or a reference to the detail sheet will be provided.

Sheet 47

Comment 86: Show existing bank protection. Plan shows new bank protection. May be its existing to remain with new toe-down protection. Please clarify.

Response 86: The existing bank protection will be shown as requested. New toe-down protection is being provided in this area. This will be clarified.



RICKER • ATKINSON • MCBEE & ASSOCIATES, INC.

Geotechnical Engineering • Construction Materials Testing

R·A·M

Simons, Li & Associates, Inc.
4600 S. Mill Avenue, Suite 200
Tempe, Arizona 85282

November 25, 1997

Attention: Bart S. Bergendahl, P.E.

Subject: Geotechnical Engineering Services
Skunk Creek Channel Improvements
FCD 95-38
Grade Control Structures

R.A.M. Project No. G01319
Supplement No. 3

At your request, this firm has excavated four test pits in the center of the channel at the following grade control structure locations:

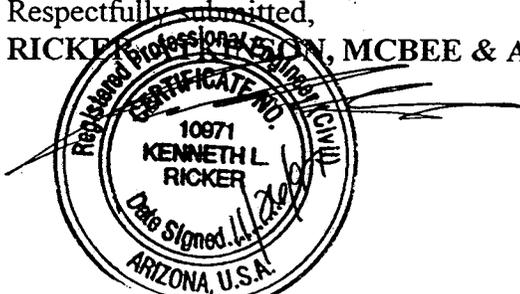
Location

1. Approximately 150' downstream of 69th Avenue
2. Approximately 150' downstream of 57th Avenue
3. Approximately 150' downstream of 54th Avenue
4. Approximately 700' upstream of 54th Avenue

The test pits were excavated with a CAT 330 B trackhoe using a 53-inch wide bucket. The trackhoe was provided by Wright's Excavating, Inc. The test pits extended to depths of 17 to 24 feet below existing stream grade which is approximately 5 feet below the anticipated maximum depth of excavation at each grade control structure. The test pits were logged by a field technician from our firm who also obtained representative samples of the various materials encountered. The logs of the test pits are attached along with the laboratory test results. This report completes our services for the project.

If you have any questions or need clarification of any item please contact the undersigned.

Respectfully submitted,
RICKER, ATKINSON, MCBEE & ASSOCIATES, INC.



By: Kenneth L. Ricker, P.E.



Reviewed by: Charles H. Atkinson, P.E.

/nk

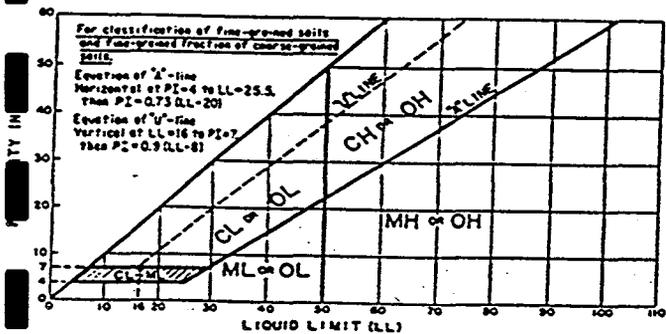
Copies To: Addressee (5)

LEGEND

CLASSIFICATION OF SOILS

ASTM Designation: D2487-83
(Based on Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				Soil Classification			
				Group Symbol	Name		
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	$Cu > 4$ and $1 < Cc < 3$	GW	Well graded gravel		
		Gravels with Fines More than 12% fines	$Cu < 4$ and/or $1 > Cc > 3$	GP	Poorly graded gravel		
			Fines classify as ML or MH	GM	Silty gravel		
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	$Cu > 6$ and $1 < Cc < 3$	SW	Well-graded sand		
		Sands with Fines More than 12% fines	$Cu < 6$ and/or $1 > Cc > 3$	SP	Poorly graded sand		
			Fines classify as ML or MH	SM	Silty sand		
FINE-GRAINED SOILS 50% or more passes the No. 200 Sieve	Silt and Clays Liquid limit less than 50	Inorganic	$PI > 7$ and plots on or above "A" line	CL	Lean clay		
		Organic	$PI < 4$ or plots below "A" line	ML	Silt		
			$\frac{\text{Liquid Limit} - \text{oven dried}}{\text{Liquid limit} - \text{not dried}} < 0.75$	OL	Organic clay Organic silt		
		Silt and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay	
			Organic	PI plots below "A" line	MH	Elastic silt Organic clay	
				$\frac{\text{Liquid limit} - \text{oven dried}}{\text{Liquid limit} - \text{not dried}} < 0.75$	OH	Organic silt	
	HIGHLY ORGANIC SOILS Primarily organic matter, dark in color, and organic odor				PT	Peat	



TEST PIT LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot		Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description
	C	N/R					

C = Continuous Penetration Resistance (2 inch diameter rod)
 N = Standard Penetration Resistance (ASTM D1586)
 R = Penetration Resistance (3 inch diameter ring line sampler)

SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	U.S. STANDARD SERIES SIEVE			GRAIN SIZES		CLEAR SQUARE SIEVE OPENINGS		
	200	40	10	4	3/4"	3"	12"	
	SAND			GRAVEL				
	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	BOULDERS	
MOISTURE CONDITION (INCREASING MOISTURE →)								
DRY	SLIGHTLY DAMP		DAMP (Plastic Limit)	MOIST	VERY MOIST	WELL (SATURATED) (Liquid Limit)		

CONSISTENCY CORRELATION		RELATIVE DENSITY CORRELATION	
CLAYS & SILTS	BLOWS/FOOT*	SANDS & GRAVELS	BLOWS/FOOT*
VERY SOFT	0-2	VERY LOOSE	0-4
SOFT	2-4	LOOSE	4-10
FIRM	4-8	MEDIUM DENSE	10-30
STIFF	8-16	DENSE	30-50
VERY STIFF	16-32	VERY DENSE	OVER 50
HARD	OVER 32		

*Number of blows of 140 lb. hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).

TEST PIT LOG

Project: 150' Downstream of 69th Avenue TEST PIT: 1
 Elevation: Not Determined Datum: --- Date: 11-14-97

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5						GC	Clayey Sandy Gravel with Cobbles; brown, nearly dry, medium dense to dense, medium plasticity fines, (+3"~15%), some boulders.
10						SM	Silty Gravelly Sand; brown, nearly dry, dense to very dense, non-plastic fines, moderate cementation, (+3"~2%), occasional cobbles.
20							Stopped excavating at 18 feet. No Groundwater Observed.
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

TEST PIT LOG

Project: 150' Downstream of 57th Avenue
 Elevation: Not Determined Datum: ---

TEST PIT: 2
 Date: 11-14-97

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5						SP/ SW/ SC	Clayey Gravelly Sand; brown, nearly dry, medium dense to dense, some medium plasticity fines, with cobbles (+3%~5%), trace boulders.
10							
15						SC	Clayey Gravelly Sand; brown, nearly dry, dense to very dense, medium plasticity fines, (+3%~0%).
20						CL/ SC	Sandy Clay/Clayey Sand; brown, nearly dry, very hard, medium plasticity, very heavy cementation.
25							Stopped excavating at 24 feet. No Groundwater Observed.
							This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

TEST PIT LOG

Project: 150' Downstream of 54th Avenue
 Elevation: Not Determined Datum: ---

TEST PIT: 3
 Date: 11-14-97

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5						SM/ GP	Fill - Silty Sand and Gravel with Cobbles, Trash, Asphalt and Other Debris; brown, nearly dry, loose to medium dense, low plasticity fines, (+3"~25%), boulders.
						SP/ SW/ SC	Clayey Gravelly Sand; brown, nearly dry, medium dense to dense, some medium plasticity fines, with cobbles (+3"~5%), trace boulders.
10						CL/ SC	Sandy Clay/Clayey Sand; brown, nearly dry, very hard, medium plasticity, very heavy cementation.
15							
20							Stopped excavating at 17 feet. No Groundwater Observed.
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

TEST PIT LOG

Project: 700' Upstream of 54th Avenue
 Elevation: Not Determined Datum: ---

TEST PIT: 4
 Date: 11-14-97

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5						GP	Sandy Gravel with Cobbles; brown, nearly dry, medium dense to dense, trace to non-plastic fines, (+3" ~ 15%), some boulders.
10							
15						CL/ SC	Sandy Clay/Clayey Sand; brown, nearly dry, very hard, medium plasticity, very heavy cementation.
20							Stopped excavating at 20 feet. No Groundwater Observed.
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

December 1, 1997

To: R.W. Shobe

From: Olin S. Sutton, jr.

Subject: Skunk Creek Channel Improvements Phase I and II 60% plan Review Comments

Phase I:

Sheet 13 - The 36" water appears to be out of alignment.

12" water line not on the cross section.

Sheet 14 - No note for 10.

Sheet 15 - 8" water line conflict.

Sheet 17 - 8" water line clearing by 2 ½'.

Sheet 23 - No note for 4.

Sheet 24 - No note for 4.

Sheet 25 - No note for 4.

Sheet 26 - No note for 4.

Phase II:

Sheet 11 - 4 should be 3.

Sheet 13 - Horizontal view shows an 8" water and a 12" water.

The vertical view shows a water and gas / sanitary sewer line.

Sheet 14 - The sewer on the horizontal view, is there a problem with it? It appears to stop at 101 + 00.

Sheet 15 - The 12" water not shown on the horizontal.

Sheet 17 - Shows two 12" water on the horizontal and a 12" water and a SWG on the vertical.



MEMORANDUM

City of Glendale
Engineering Department

Date: December 2, 1997
To: RW Shobe
Flood Control District of Maricopa County
From: Daniel A. Sherwood
Subject: Skunk Creek Channelization, 60% Submittal Comments

Following are my comments on the 60% submittal.

Phase I

- We can not close 54th and 57th Avenue at the same time during construction.
- There is something wrong with the table on Sheet 9. $177+00 > 65.18+13.49=78.67$, $240+00 > 109.84+55.48=165.32$, $256+00 > -34.02+57.98=23.96$. I don't understand.
- What is the purpose for the ramp on the south side at station 201+60?
- We need ramps to get the pedestrians etc under Union Hills Drive.
- Need to show ramps 16, 17, & 18 on the plans.

What is the status of the hole on the north side of the creek west of 51st. Avenue? Is Flood Control District going to purchase the property or construct the levee? I want to to the minimum levee for bank protection if we don't buy the property because I don't want to pay for all the developers improvements. *i.e., Top Width Min ~~Top Width~~ 10'*

- Is there a utility pole within the grading limits at the NE corner of Skunk Creek and the 55th Avenue Drainage channel?
- What are the limits of the concrete removal at the 55th Avenue Drainage channel?
- The south side of the creek has levees that will trap the water behind the levee similar to the north side. How are we handling this?

Phase II

- What is the purpose of the ramp at 142+00? It is OK to leave.
- When is a 10% ramp used instead of a 5% ramp?
- The levee will trap water on both sides of the creek. This needs to be taken care of.
- The ROW is not shown correctly on the south side of Skunk Creek east of 67th Avenue. The City purchased ROW in this area for the 67th Avenue Bridge project and the owner is coming in for a plat to develop the rest of the property. We will not get any more ROW from what we now have.
- There are 24" pipes shown through the levee at several locations adjacent to Sunset Vista. The pipe size is far too small on some of these locations. We have had problems in the past with the amount of water in the open channel that has washed away the concrete channel. Need to take a close look at whether we can leave these as open swales into the creek instead of pipes. Especially at station 163+70. Per the Sunset Vista drainage reports the flows range between 69 cfs and 89 cfs. 163+70 has over 100 cfs when adding the flow from the subdivision to the north.
- I thought there were some existing gabions on the south side of the creek south of Union Hills Drive that were in the wrong location making the creek too narrow. I don't see any indication of this on the plans.
- We will need to complete the channel excavation downstream of 67th Avenue Bridge.

It appears there may be some federal money available for doing repair to bridges that are subject to scour. We have two bridges on Skunk Creek that have this problem, Bell Road and 59th Avenue. If we get MAG approval today, we will need to separate these bridges from the project and make them into a stand alone project. The cost for the design and construction would be the City of Glendale's and would be deducted from our portion of the overall construction costs reducing the \$1,900,000 city commitment. I will let everybody know later this week.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Interoffice Memorandum

To: R.W. Shobe

From: Gary Shapiro

Date: Nov. 25, 1997

SUBCET: Skunk Creek Channel Improvements Phase I, 60% Review Comments.

PLANS:

General:

1. The project control is still not established. Discrepancies have been noted. Due to the unsymmetrical and curvilinear nature of the channel both the North and South banks will need to be laid out with bearings, radii, distances, points of intersection, deltas, coordinates, etc. This can be accomplished on the geometric control sheet.
2. Right-of-way still remains to be a problem and has not been fully incorporated into the plan views. Rights-of-ways will also require geometric layout. It is essential that the project controls and rights-of-ways be well established.
3. Scour calculations need to be submitted. Verification of toe down depths for both the grade control structures and bank protections are necessary.
4. Do not show the project beyond the match lines.
5. Items that are to be constructed shall stand out (bold) from the existing condition.
6. All the grade control ramps are buried or below invert. Please explain this concept.
7. Drainage behind the levee still needs to be shown and addressed.
8. Cross sections need to show existing banks where existing banks remain.
9. Throughout the plans it is unclear and confusing as to whether or not the existing bank is to remain or be replaced, especially around the grade control structures.
10. Elevations and offsets are conflicting throughout the plans. Cross sections, plan and profiles, details need to correspond with each other and have the same elevations and dimensions.

- Sheet 4. -The benchmark for 75th Ave seems quite far to be used for this phase of the project. Isn't there another benchmark closer to this phase of the project that can be used?
-Please re-check bearings and deltas. Assuming the coordinates are correct, the calculations for bearings are a bit different than what is indicated on the geometric control sheet.
-Tangent lengths appear to be hurting. Please recheck and make the necessary corrections.
- Sheet 5-10 No Comment at this time.
- Sheet 11. -The plans indicate that this reach is to be undisturbed while the cross sections indicate a design invert. Please make the necessary corrections.
-The hydraulic grade line is indicating a drop at Station 179+50 yet there is no drop condition indicated in the profile at this station.
-If there is a drop, the placement of appropriate sized riprap may be required to reduce the scour potential and help dissipate energy.
-The proposed toe down for the bank protection should be the same depth as the toe down for the grade control structure. This should be shown in bold.
- Sheet 12. -The plans indicate that this reach is to be undisturbed while the cross sections indicate a design invert. Please make the necessary corrections.
-Please provide scour calculations. The toe down of 2-3 feet may not be adequate with in this reach.
-Identify the hydraulic grade line, drainage behind the levee, and right-of-way.
- Sheet 13 -Identify drainage behind the levee, right-of-way, and contractor's staging area. Grade control ramp is below invert.
- Sheet 14. -The hydraulic grade line is shown above the top of bank. Make the necessary corrections.
-Identify the right-of-way, drainage behind the levee, contractors staging area. Grade control ramp is below invert. Please justify the difference between upstream and down stream toe downs for the grade control structure (seems excessive).
- Sheet 15 -Identify right-of-way and drainage behind levee.
- Sheet 16. - Identify right-of-way and drainage behind levee.

- Sheet 17. -Please identify if 55th Ave is a dead end road or a dip crossing.
 -Identify contractors staging area.
 -Drainage behind levee needs to be identified.
 -The ramp is buried.
 -The 8-inch waterline is drawn not to scale, appears to be 6-foot.
 -Will pavement replacement be required at 54th Ave. dip crossing?
 -Do not show project beyond the match lines.
 -Explain the temporary construction easement.
- Sheet 18. -Drainage behind levee needs to be identified.
 -The bank protection is beyond the shown right-of-way.
 -Do not show project beyond match lines.
- 12-13-97 Sheet 19. -Identify right-of-way.
 -Do not show project beyond match lines.
 -At Station 256+00 it is indicated that the project ends, yet on sheets 4 and 44 the project goes to station 261+00. Please be consistent.
- Sheets 20-22 -No comment at this time.
- Sheet 23. -Move plan view to show entire grade control structure.
 -Show bank protection for both sides.
 -A grade control structure control line is not needed.
- Sheet 24. -Elevations of the grade control structure does not match that of sheet 33.
 -A grade control structure control line is not needed.
- Sheet 25 -The bank protection should go down to the toe of the grade control structure.
 -A grade control structure control line is not needed.
 -Elevations do not match sheet 33.
- Sheet 26. -A grade control structure control line is not needed.
 -Elevations do not match sheet 33.
 -Is this really 69th Ave.?
- Sheet 27. -No comment.
- Sheet 28. -Ramp 11 Is there a drop or not?
 -Access ramps can be at 10% for disabilities and vehicles.
 -Is "F2" the channel invert? Ramp 11 elevations are indicated at 1243+/- and the cross sections are indicated at 1240+/- . Please make necessary corrections.
 -Is "F1" the same as "A"? Ramp 11 offsets are indicated in the 80's, yet sheets 9 and 11 show top of bank at 106 feet +/- . Please make the necessary corrections.

- Does the project start at station 177+00 or at 176+63?
- Sheet 29. -Ramps can be at 10%.
-Turnarounds may be required where ramp meets path.
- Sheet 30 -Are these buried ramps (15&16) needed. Please explain concept.
- Sheet 31 -Ramps 17&18 may need turnarounds where ramp meets path. These ramps can be at 10% slope for vehicles and disabilities.
-Ramp 17 needs to be 15 feet in width.
- Sheet 32. -No comment.
- Sheet 33. -Why duplicate "Typical grade control structure" and "Gabion grade control structure bank connection" (see sheet 32).
-The grade control structure schedule is inconsistent with information on sheets 24, 25, 26. Please make the necessary corrections.
- Sheet 34. -No comment.
- Sheet 35. -Sheets A3, A6, A7, A8 are unclear because there are no sheets numbered in that fashion. Please correct.
-What is with the one to one slope?
- Sheets 36-37 -Show existing banks.
- Sheet 38 -Are there new banks at station 197, 198, 199?
-Show existing banks.
- Sheet 39 -Show existing banks.
- Sheet 40 -Are you sure there is bank protection at 57th Ave for station 216 and 217?
- Sheet 41. -Are you sure there is bank protection at 55th Ave for station 228?
-Are you sure there is bank protection at 54th Ave for station 234 and 235?
-Check toe down elevations, Stations 232 and 233, 1264 or 1258?
- Sheet 42 -Are you sure about bank protection at 54th Ave for station 236 and 237?
-Show existing bank protection.
- Sheet 43 -Show existing bank protection.
- Sheet 44 -Does project end at station 256? What happens from 256 to 261?

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Interoffice Memorandum

To: R.W. Shobe

From: Gary Shapiro

Date: Nov. 25, 1997

SUBCET: Skunk Creek Channel Improvements Phase II, 60% Review Comments.

PLANS:

General:

1. The project control is still not established. Discrepancies have been noted. Due to the unsymmetrical and curvilinear nature of the channel both the North and South banks will need to be laid out with bearings, radii, distances, points of intersection, deltas, coordinates, etc. This can be accomplished on the geometric control sheet.
2. Right-of-way still remains to be a problem and has not been fully incorporated into the plan views. Rights-of-ways will also require geometric layout. It is essential that the project controls and rights-of-ways be well established.
3. Scour calculations need to be submitted. Verification of toe down depths for both the grade control structures and bank protections are necessary.
4. Do not show the project beyond the match lines.
5. Items that are to be constructed shall stand out (bold) from the existing condition.
6. All the grade control ramps are buried or below invert. Please explain this concept.
7. Drainage behind the levee still needs to be shown and addressed.
8. Cross sections need to show existing banks where existing banks remain.
9. Throughout the plans it is unclear and confusing as to whether or not the existing bank is to remain or be replaced, especially around the grade control structures.
10. Elevations and offsets are conflicting throughout the plans. Cross sections, plan and profiles, details need to correspond with each other and have the same elevations and dimensions.

Start here

- Sheet 4. -The benchmark for 59th Ave seems quite far to be used for this phase of the project. Isn't there another benchmark closer to this phase of the project that can be used?
 -Please re-check bearings and deltas. Assuming the coordinates are correct, the calculations for bearings are a bit different than what is indicated on the geometric control sheet.
 -Tangent lengths appear to be hurting. Please recheck and make the necessary corrections.
- Sheet 5-10 No Comment at this time.
- Sheet 11. -The hydraulic grade line at Station 74+00 does not agree with cross sections.
 -Do not show project beyond match lines.
 -Phase II begins at what station?
 -Number 4 toe of back slope, cross sections show cut, please make necessary corrections.
 -In the profile change 4 to 3.
- Sheet 12. -Check top of bank and hydraulic grade line. They appear to be plotted incorrectly.
 -Show the 12-inch storm drain in the profile, and show the right-of-way within this area.
 -Drainage behind the levee needs to be addressed.
- Sheet 13 -Ramps can be at 10% slope.
 -Turnarounds may be needed where the levee ramp meets the path.
 -Drainage for the southwest side of Bell Road?
 -Do not show project beyond match line.
- Sheet 14. -Right-of-way problems, please rectify.
 -Turnaround where ramp meets path.
 -Drainage at station 103+50, east side?
 -Do not show project beyond match lines.
- Sheet 15 -Right-of-way need to be corrected at 69th Ave.
 -Do not show project beyond match lines.
 -A drop structure may require some dumped rip rap to aid in the dissipation of energy. Also the hydraulic grade line may drop as well. Please check.

- Sheet 16. -Do not show project beyond match lines.
 -Drainage behind levee.
 -Buried ramp?
 -At station 127 the invert does not match with the cross sections. Please
 make the necessary corrections.
- Sheet 17. -It appears as though there is a freeboard problem. Please explain.
 -Are there or should there be turn backs at 67th Ave?
 -Do not show project beyond match lines.
- Sheet 18. -Drainage behind levee needs to be identified.
 -Back slope and right-of-way problems exist.
 -Do not show project beyond match lines.
 -Turnaround may be needed where ramp meets path.
 -Ramp can be at a 10% slope.
 -At station 146+50 +/- right-of-way and drainage need to be corrected.
- Sheet 19. -Do not show project beyond match lines.
 -At Station 150+00 and 155+00 right-of-way and drainage need to be
 corrected.
 -Back slope and right-of-way may present some problem.
 -Drainage behind levee needs to be addressed.
- Sheets 20 -At station 158+00 and 163+50 right-of-way and drainage need to be
 corrected.
 -Drainage behind the levee needs to be addressed.
 -The back slope at the street may present a problem and needs to be
 rectified.
 -The ramp can be at a 10% slope.
- Sheet 21. -The ramp can be at a 10% slope.
 -Is there any salvage of rip rap from gabions that can be used for the new
 bank protection. Is toe down to be added to the existing bank. Please
 clarify.
- Sheet 22-23. -No comment.
- Sheet 24. -Dimension grade control structure.
 -No apron in profile? Apron in plan.
- Sheet 25 -The bank protection should go down to the toe of the grade control
 structure.
 -A grade control structure control line is not needed.
 -Dimension grade control structure.

- Sheet 26. -The bank protection should go down to the toe of the grade control structure.
-A grade control structure control line is not needed.
-Dimension grade control structure.
- Sheet 27. -No comment.
- Sheet 28. -Access ramps can be at 10% for disabilities and vehicles.
-Ramp should be 15 feet in width.
-The path should be 15 feet in width.
-Are turnarounds needed for vehicles?
- Sheet 29. -Ramps can be at 10%.
- Sheet 30. -Ramps can be at 10%
- Sheet 31. -Ramps can be at 10% slope for vehicles and disabilities and 15 feet in width.
- Sheet 32. -Ramps can be at 10% slope.
- Sheet 33. -No comment.
- Sheet 34. -Why duplicate "Typical grade control structure" and "Gabion grade control structure bank connection" (see sheet 33).
-The grade control structure schedule is inconsistent with information on sheets 24, 25, 26. Please make the necessary corrections.
- Sheet 35. -No comment.
- Sheet 36. -Sheets A3, A6, A7, A8 are unclear because there are no sheets numbered in that fashion. Please correct.
-What is with the one to one slope?
-
- Sheets 37. -There is 5 feet of free board only 1 foot is required when incised and 3 feet when in a levee condition. Please explain.
- Sheet 38. -Freeboard needs to be checked (5-6 feet?).
- Sheet 39. -Show existing banks differently than new banks.
-Are you sure there is bank protection at stations 93, 94, and 95.
-9, 8, and 10 feet of freeboard?
-Show ramps at stations 97 and 98.

- Sheet 40 -Are you sure there is bank protection at station 101?
-9 feet of freeboard?
-Profile sheets show 9 feet of toe down while the cross sections show 3 feet of toe down. Please make the necessary corrections.
- Sheet 41. -Are you sure there is bank protection at station 112?
-Check toe down elevations with profile and make the necessary corrections.
-8 feet of freeboard?
-Back slope of 1.5:1 at stations 111 and 112? Might hold but is in disagreement with FCD standards. Why not 3:1?
-Ramp should be shown.
- Sheet 42 -Toe downs need to be compared with profiles. Station 123 shows 8 feet of toe down and the profile show 4 feet of toe down. Station 125 shows 8 feet of toe down and the profile shows 18 feet of toe down.
-Show ramps in cross sections that are applicable.
-Invert elevations should match with profile, example station 127.
-Show existing bank protection.
- Sheet 43 -Show existing bank protection.
-Check toe downs with profile and make the necessary corrections.
- Sheet 44 -Back slopes of 1.5:1 might hold but conflict with FCD standards.
-Show ramp for stations 141 and 142.
- Sheet 45 - Back slopes of 1.5:1 might hold but conflict with FCD standards.
-Show ramps for stations 152 and 153.
-2-3 feet of toe down appears to be inadequate, please check.
- Sheet 46 -2-3 feet of toe down appears to be inadequate, please check.
-Back slopes on cross sections do not agree with plan views. Example station 167 to 169. Please check and make the necessary corrections.
-Show ramp for stations 167 to 169.
- Sheet 47 -Show existing bank protection. Plan shows new bank protection. May be its existing to remain with new toe down protection. Please clarify.



DATE: Dec 30, 1997

TEL #: (602) 491-1393
FAX #: (602) 491-1396

TO: R. W. Shobe

FROM: B. Bergendahl

FAX #: 506-4601

OF PAGES (including cover page): 5

PROJECT NO.: Skunk Creek Final Design

SUBJECT: Meeting Notes.

R.W.

Attached for your info. are
my ~~meeting~~ notes from the
R/W meetings with you, Ken
Green, and others.

Bob



Simons, Li & Associates, Inc.

Water Resources & Civil Engineering Consultants

December 18, 1997

Mr. Bob Bott
Arizona Public Service
Project Management Department
2121 West Cheryl Drive
Phoenix, AZ 85072

RE: SKUNK CREEK CHANNEL IMPROVEMENTS

Dear Bob:

As requested, we have attached the current plan and profile progress drawings for the proposed Skunk Creek bank protection in the area of the 54th Avenue dip crossing. We hope this will provide the information you need.

In addition, we have included the current plan and profile progress drawing for the area east of the 55th Avenue Channel (Arrowhead Drain) and north of Skunk Creek. An APS high voltage pole exists at this location. As we have discussed, the present plan places the top of the channel banks a minimum of ten feet away from the pole. The channel banks slope away from this point at a rate of 3:1 to the channel bottoms. The top of bank elevations effectively match the existing ground, therefore, maintenance access to the pole from the north and east should not be affected.

Please review these drawings and provide us with any comments you might have as soon as possible. We will provide you with a copy of the 90% drawings which are scheduled for completion on January 6, 1998.

If you have any questions or need additional information on the above, please do not hesitate to call me or Marcellus Lisotta our Design Engineer.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.

Bart S. Bergendahl, P.E.
Project Manager

BSB/ad

cc: R.W. Shobe, FCDMC

[PAZ-MC-16]
rwpw6.1:let18

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: 12-16-96
RECORDED BY: Bergendahl
TALKED WITH: Ken Green

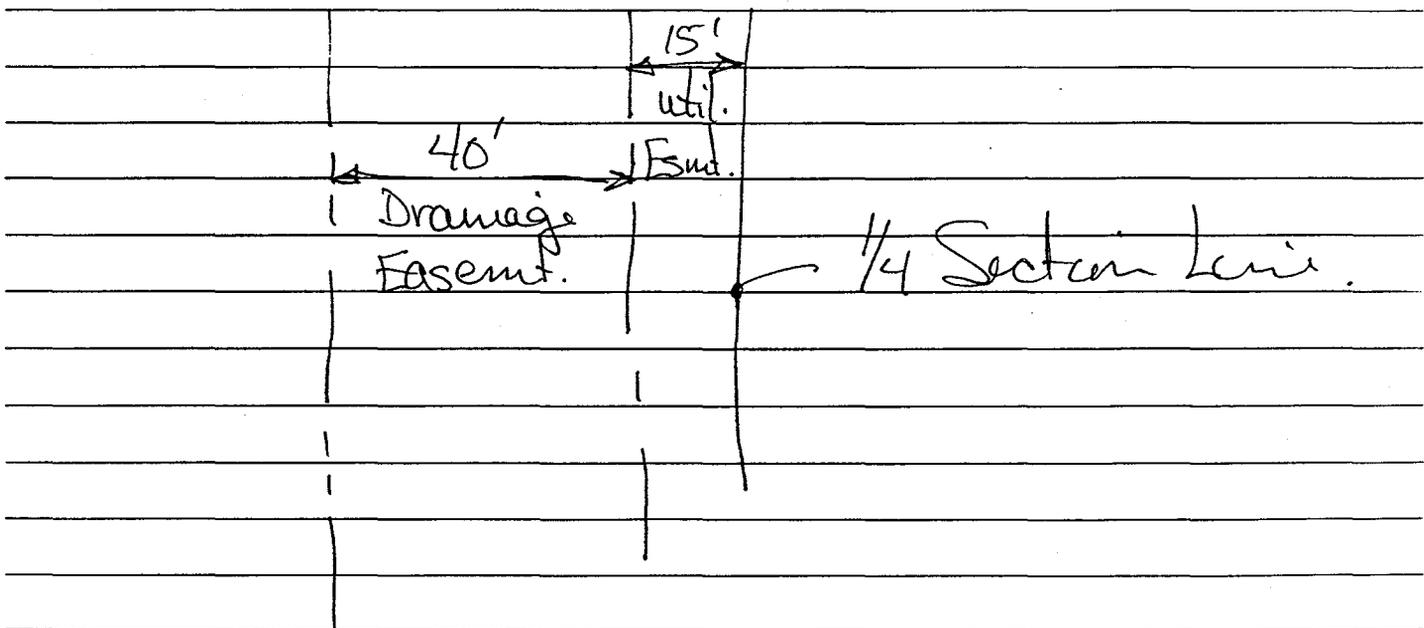
PROJECT NAME/NO.: Skunk Ck/MC-17
OWNER/CLIENT: RD/FCD
OF: FCD

NATURE OF CONVERSATION: *B.*

TELEPHONE: INCOMING
OUTGOING

MEETING: OFFICE
SITE

ITEMS DISCUSSED: Ken gave me the following
info on R/W @ the 55th Ave Channel.



Check against location of AP's poles.

cc: Marcellus

INFORMATION ACTION



Transmittal Letter

To: 7CD
2801 West Anarago.
Phoenix, AZ

Date: Dec. 16, 1997
85009

→ Attention: R.W. Shobe

Project Number: PAZ-MC-17

Skunk Creek Channel Improvements

Enclosed please find:

Copies of
1 R/W plot vs. Project Construction
limits
1 AutoCAD file of same (1 Disk)

- Forwarded
- Returned
- Prints
- Originals
- Reports
- Disks
- For Approval
- As Requested
- For Your Use
- For Your Files
- Mail
- Express Courier
- Hand Delivered

Remarks _____

From [Signature]

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: Dec. 16, 1997
RECORDED BY: Engendahl
TALKED WITH: R.W. Shobe

PROJECT NAME/NO.: Skunk Ck / MC-17
OWNER/CLIENT: FCD / FCD
OF: FCD

NATURE OF CONVERSATION:

INCOMING
TELEPHONE:
OUTGOING

OFFICE
MEETING:
SITE

ITEMS DISCUSSED: Met with R.W., Ken Green, and others on R/W needs for project. Discussed acquiring additional R/W and easements based on current design.

- Ken Green told me the R/W and easements at the 55th Ave. Channel were tied to the Section line. He will provide info. ASAP. Hope to provide complete R/W info by end of Dec.
- R.W. ask me to check the bank protection terminal @ S.E. quadrant of 69th Ave. (It should end 25 ft north of given property line.)
- R.W. wants a check valve for levee downstream of 51st Ave, north bank.
- R.W. said District will buy R/W need @ S.E.

cc: Dennis, Marcellus.
R.W.

INFORMATION ACTION
quadrant of 67th Ave.
Proceed with Phase II design as proposed.



Simons, Li & Associates, Inc.

Water Resources & Civil Engineering Consultants

DATE: Dec. 15, 1997

TEL #: (602) 491-1393

FAX #: (602) 491-1396

TO: Dan Sherwood

FROM: B. Bergendahl

FAX #: 915-2689

OF PAGES (including cover page): 3

PROJECT NO.: Skunk Creek

SUBJECT: R/W @ 67th Ave.

Dan

See attached drawing.

B. Bergendahl

December 11, 1997

Mr. R. W. Shobe
Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009

RE: SKUNK CREEK CHANNEL IMPROVEMENTS FINAL DESIGN - FCD CONTRACT 95-38

Dear R.W.:

Enclosed are the minutes of the 60% review meeting held at the District on December 2, 1997. A copy of the minutes will be sent to all who attended the meeting.

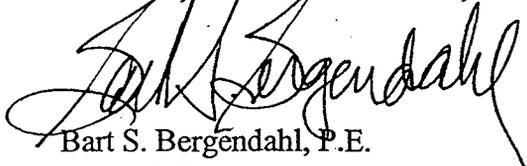
As we have discussed and as indicated in the minutes, SLA is very concerned about the impact of possibly reducing the available right-of-way along the south bank, immediately upstream of the 67th Avenue crossing. The steep and narrow nature of the channel, upstream of this location, is very sensitive to any change in channel geometry. The ability to slightly widen the channel to the south at this location was key to satisfying the design constraints and criteria (Froude No., freeboard, levee height, backside drainage, trails, etc.) between 67th Avenue and Union Hills Drive. A change in channel geometry at this location will require significant additional hydraulic/scour analysis time and effort. In addition, the change may make it impossible to meet the design criteria and District standards without significant structural analysis and design.

To meet the project schedule, all hydraulic and scour analyses should have been completed by this time. We have suspended working toward the 90% design in the area, pending the District's decision on this very important issue.

If you have any questions or require additional information on the above, please do not hesitate to contact me.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.



Bart S. Bergendahl, P.E.
Project Manager

BSB/ad

Attachment

SIMONS, LI & ASSOCIATES, INC.

4600 South Mill Avenue, Suite 200
Tempe, Arizona 85282-6759
(602) 491-1393 Fax: (602) 491-1396

MEETING MINUTES

PROJECT: Skunk Creek Channel Improvements Final Design
FCDMC Contract No. 95-38
SLA Project No. PAZ-MC-17

DATE: December 2, 1997 TIME: 10:00 am

LOCATION: Flood Control District

SUBJECT: 60% Plan Review Meeting

ATTENDEES: See Attached Attendance Roster 

The purpose of this meeting was to receive and discuss comments generated from the 60% plan review conducted by the District, the Cities of Glendale and Peoria, and Southwest Gas Company on the above project. R.W. Shobe opened the meeting by asking each person to present their major comments for discussion and to submit all comments in writing to SLA. SLA will provide R.W. with a written response to all comments submitted. The following is a summary of the comments and ensuing discussion that occurred.

Fred Fuller of the District asked whether the 4-inch maximum gradation specified for the 1-foot soil cover over the gabions was acceptable to the City of Glendale. Dan Sherwood replied that it was acceptable. Fred asked that the bid item numbers match the MAG or special provision numbers. SLA stated this was intended, but the numbers would be checked to ensure they match. He asked that the specification for straw mulch be checked to ensure a good quality straw was used in the seeding operation. He suggested any replacement trees be bid per each rather than lump sum. Fred also asked that the special provisions minimize the amount of construction survey required for earthwork measurements. He asked that the pipe sizes called for by the plans be included in the appropriate section of the specifications, and that the riprap quantities be tabulated. He suggested the drop inlet dimensions called for by the MAG standard be modified to fit the rectangular grate. Fred provided a marked-up plan set to SLA.

Olin Sutton asked SLA to check the utility location, plan vs. profile, on Phase II plan sheets 13 and 17. He also asked whether the utility at 54th Avenue was sufficiently deep near the north bank. SLA stated this waterline is being relocated and deepened as part of the dip crossing improvements being done at this location for Marlbor Homes. No other major utility relocations are anticipated. Olin provided SLA with written comments.

Dan Sherwood of Glendale asked SLA to check the offset tables for Phase I and II. Some of the negative offsets appeared to be in error. SLA stated they would do so. Dan stated that Glendale wants ramps at Union Hills to carry the pedestrians under the bridge, and at 51st Avenue to allow equestrians to access the channel bottom. R.W. Shobe stated that the ramps at Union Hills would disturb an excessive amount of existing bank protection and would not be built unless Glendale funded them. At 51st Avenue, R.W. suggested investigating a possible equestrian ramp at the downstream end of the existing south-side bank protection. This was agreeable to Glendale. Dan provided SLA with written comments.

Shirley Medler of Glendale asked whether the "E-Group" had contacted SLA concerning the Glendale pedestrian project for the 71st Avenue channel. SLA stated they had and proposed to them that a gabion terminal with no ramps would be built on the east bank at Skunk Creek under the District's project. A bank protection terminal already exists at the west bank. The E-Group would design the channel crossing(s) as indicated by the ongoing 71st Avenue pedestrian study. This was agreeable to Glendale.

Dan Sherwood stated that the culverts provided for offsite drainage downstream of Union Hills Drive seemed small. SLA stated the final sizes have not been determined. Dan provided SLA with a drainage report for the Sierra Vista development to assist SLA with the design. He asked that the report be returned. He also provided the development plans for the northeast quadrant of Skunk Creek and Bell Road, and the grading plans for portions of Coppercrest residential development.

Dan stated the right-of-way provided by the District for the south bank, just upstream of 67th Avenue, is not correct. It is much less than indicated. He will provide the plat which defines the correct right-of-way. SLA expressed serious concern over reducing the available right-of-way in this area. Because of the narrowness of the drainage corridor between Union Hills and 67th Avenue, it was very difficult and time consuming to satisfy all the design constraints in this area. The south-bank right-of-way just upstream of 67th Avenue is key to satisfying the governing hydraulic criteria. SLA stated that all scour analysis work needs to be completed by the end of the week to avoid impacting the project design schedule. Any change in right-of-way will require additional hydraulic and scour analyses.

Dan stated that Glendale may be interested in contracting with SLA to develop a separate contract for the grade control structures at Bell Road and 59th Avenue by the end of January. He stated that the proposed shotcrete armor for the grade control structures was acceptable to Glendale. He requested that a detail be developed to emphasize the minimum 3-inch shotcrete cover. R.W. Shobe agreed that the grade control structures were acceptable as currently proposed.

R.W. Shobe suggested SLA proceed with the levee option along the north bank, downstream of 51st Avenue. He hopes to provide final direction by the end of the day. R.W. asked SLA to evaluate bank protection terminal designs, in areas where they are outside the existing right-of-way, to determine whether steeper side slopes would allow the terminal to stay within the right-of-way. If the steeper side slopes allow the terminals to stay within the existing right-of-way, the soil cover will be omitted. SLA stated that side slopes (i.e., gabion basket walls) steeper than 1.5:1 would likely require a separate stability analysis. R.W. stated he would like to avoid this.

Bob Stevens of the District participated in a field review of the existing vegetation along the project limits and reported no trees were identified as needing protection or replacement. He stated the application of a native seed mix after construction would be acceptable. SLA stated this was already included as part of the project. R.W. Shobe added that vegetation should only be cleared where required to place the bank protection.

SLA reported that the existing gabion aprons between Union Hills and 59th Avenue need to be lengthened to provide adequate scour protection. A "soft bottom" width of 40 to 80-foot will remain after lengthening.

Gary Shapiro of the District had some questions regarding the geometric control information and asked SLA to check it for both phases. He also suggested that a separate control line be developed for each bank and be placed only on the geometric control sheet. SLA stated this would, in effect, provide the dual control line that was considered too confusing and eliminated after the 30% plan review meeting. R.W. Shobe directed SLA to stay with the single control line as currently designed. Gary provided SLA with written comments, as well as marked-up plans and specifications.

The review meeting adjourned at approximately 11:15 am.

After the review meeting SLA met with R.W. Shobe and John Sanchez to discuss defining the right-of-way for the areas downstream of 51st Avenue and between 59th and 55th Avenues, as well as cross-road easements. SLA provided drawings showing the areas in question. John stated he would get with the District's right-of-way people and the City of Glendale and provide the required information.

SLA asked R.W. whether he still wants to include a special provision which provides direction to the contractor and field personnel should hazardous waste be encountered during the excavation of the landfill. He stated he will provide the provision to SLA.

If any corrections or additions are required to these minutes, please notify SLA by December 26, 1997.

Meeting Attendance Roster

Project: Skunk Creek Channel Improvements
60% Plan Review Meeting

Date: December 2, 1997

Project Number: PAZ-MC-17

Time: 10:00am

Location: Flood Control District of Maricopa County

Name	Organization	Telephone
R.W. Shobe	Flood Control District	506-4603
Olin S. Sutton, Jr.	Flood Control District	506-8437
Gary Shaprio	Flood Control District	506-3076
Bob Stevens	Flood Control District	506-4073
Fred Fuller	Flood Control District	506-4728
Dan Sherwood	City of Glendale	930-3630
Shirley Medler	City of Glendale	930-2669
Bart Bergendahl	Simons, Li & Associates, Inc.	491-1393
Marcellus Lisotta	Simons, Li & Associates, Inc.	491-1393



December 9, 1997

Mr. Michael G. Rhodes, P.E.
Vice President/Land Development Manager
Landmark Consultants, Inc.
13430 North Scottsdale Road, Suite 202
Scottsdale, AZ 85254

RE: SKUNK CREEK CHANNEL DESIGN AT 54th AVENUE DIP CROSSING

Dear Mike:

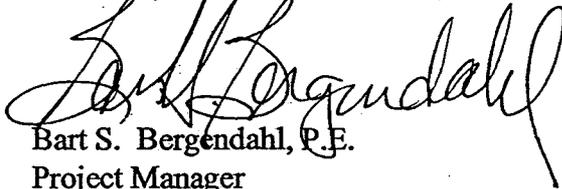
As discussed with Marcellus Lisotta on December 3, 1997, Simons, Li & Associates, Inc. (SLA) has completed the scour analysis for Skunk Creek in the area of the 54th Avenue dip crossing which Landmark designed for Marlor Homes at Carmel Cove, Unit II. The results of the analysis indicate the 6-inch waterline, being relocated as part of your project, should be buried a minimum of 6.8 feet below the design channel invert elevation of 1271.6 feet.

From your conversation, we understand that property grading has begun on the project, but the waterline will not be relocated until January 1998. We respectfully request the waterline be relocated through a construction field change according to the results of the scour analysis, and the relocation be reflected on the as-built plans. Also from your conversation, we understand that Mr. Bill Amlong is performing the on-site construction inspection for the City of Glendale. A copy of this letter will be sent directly to him.

If you have any questions or require additional information on the above, please do not hesitate to contact us.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.



Bart S. Bergendahl, P.E.
Project Manager

BSB/ad

cc: Bill Amlong, City of Glendale, Engineering Department
R. W. Shobe, Flood Control District of Maricopa County

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: Dec 9, 1997
RECORDED BY: Bergendahl
TALKED WITH: R.W. Shobe

PROJECT NAME/NO.: Skunk Ck/MC-17
OWNER/CLIENT: FCD/FCD
OF: FCD

NATURE OF CONVERSATION:

INCOMING
TELEPHONE:
OUTGOING

OFFICE
MEETING:
SITE

ITEMS DISCUSSED: Met with R.W. & Ken Green to clarify areas of underyielded R/W and areas with additional R/W requirements.

R.W. told me FPS wants updated info on bank protection alignment @ 54th Ave.

R.W. directed me to eliminate R/W line for South bank between Union Hills & 59th Ave.

Ken Green asked for an update of proposed construction limits and existing R/W info.

R.W. told me to continue focus on Phase I design plans pending decision on R/W issue @ 67th Ave.

R.W. wants to meet w/Ken again on Dec 16. 9am.

cc: Dennis, R.W.

INFORMATION ACTION

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: Dec 9, 1997
RECORDED BY: Bergendahl
TALKED WITH: Don Sherwood

PROJECT NAME/NO.: Skunk Ck. / MC-17
OWNER/CLIENT: 7ed / 7ed
OF: Glendale

NATURE OF CONVERSATION:

INCOMING
TELEPHONE:
OUTGOING

OFFICE
MEETING:
SITE

ITEMS DISCUSSED:

Don told me the 100-yr. discharge for Arrowhead Drain (55th Ave Channel) is 2020 cfs. (Channel capacity is 4495 cfs.) Numbers come from a 1992 study using TR-20 and 24-hour rainfall.

cc: Krey, R.W.

INFORMATION ACTION



December 9, 1997

Mr. Michael G. Rhodes, P.E.
Vice President/Land Development Manager
Landmark Consultants, Inc.
13430 North Scottsdale Road, Suite 202
Scottsdale, AZ 85254

RE: SKUNK CREEK CHANNEL DESIGN AT 54th AVENUE DIP CROSSING

Dear Mike:

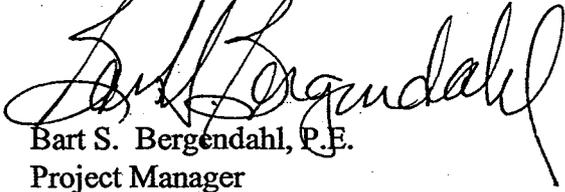
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From your conversation, we understand that property grading has begun on the project, but the waterline will not be relocated until January 1998. We respectfully request the waterline be relocated through a construction field change according to the results of the scour analysis, and the relocation be reflected on the as-built plans. Also from your conversation, we understand that Mr. Bill Amlong is performing the on-site construction inspection for the City of Glendale. A copy of this letter will be sent directly to him.

If you have any questions or require additional information on the above, please do not hesitate to contact us.

Sincerely,

SIMONS, LI & ASSOCIATES, INC.



Bart S. Bergendahl, P.E.
Project Manager

BSB/ad

cc: Bill Amlong, City of Glendale, Engineering Department
R. W. Shobe, Flood Control District of Maricopa County



DATE: Dec. 8, 1997

TEL #: (602) 491-1393
FAX #: (602) 491-1396

TO: R.W. Shobe

FROM: B. Bergendahl

FAX #: 506-8561

OF PAGES (including cover page): 3

PROJECT NO.: Skunk Ck.

SUBJECT: Glendale R/w @ 67th Ave.

R.W.

See attached, as discussed.

Bob

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: Dec. 5, 1997
RECORDED BY: Bergendahl
TALKED WITH: R.W. Shobe

PROJECT NAME/NO.: Steink Ale. / MC-17
OWNER/CLIENT: FCD / FCD
OF: FCD

NATURE OF CONVERSATION:

TELEPHONE: INCOMING
OUTGOING

MEETING: OFFICE
SITE

ITEMS DISCUSSED:

I inform R.W. that the change in R/W east & south of the 67th Ave Bridge would have a very significant impact on Phase II design, because of the drastic narrowing (80'). May require a vertical-wall concrete channel to meet the hydraulic requirements. R.W. told me to focus design effort on Phase I until a decision is made concerning this issue.

cc: Dennis, Marcellus, R.W. INFORMATION ACTION

RECORD OF CONVERSATION

SIMONS, LI & ASSOCIATES, INC.

DATE: 12/3/97 PROJECT NAME/NO.: MC-17

RECORDED BY: Mike Rhodes OWNER/CLIENT: F.C.D.

TALKED WITH: M.L. OF: LANDMARK CONSULTANTS

NATURE OF CONVERSATION: INCOMING OFFICE

TELEPHONE: OUTGOING MEETING: SITE

ITEMS DISCUSSED: Told Mike 54th Ave. Watermain must be protected to depth of 6.8' scour => use 7.0' Min. Bury Depth for new installation.

The construction plans are complete and approved. Construction has begun for property grading and watermain will probably be installed in January 1998.

The revised watermain depth of 7' +/- is not a problem. This revision can be accommodated by field change, and reflected on as-built plans.

C.O. Glendale Bill Amlong is inspecting constr. on-site.

* I told Mike, SLA will provide a letter recommending INFORMATION ACTION

cc: BSB, file

RECORD OF CONVERSATION

MC-17

SIMONS, LI & ASSOCIATES, INC.

DATE: 12/2/97

PROJECT NAME/NO.: SKUNK CREEK

RECORDED BY: M.L.

OWNER/CLIENT: F.C.D.

TALKED WITH: R.W. Shobe

OF: F.C.D.

NATURE OF CONVERSATION:

INCOMING

OFFICE

TELEPHONE:

OUTGOING

MEETING:

SITE

ITEMS DISCUSSED: F.C.D. HAS SPOKE W/ C.O. Glendale REGARDING THE ACCESS TRAMP NEAR 51ST AVE. BRIDGE. THE LOCATION PROPOSED BY SLA DURING 60% REVIEW MEETING (AT D/S END OF EXISTING GABIONS STA 245+0) IS NOT ACCEPTABLE.

R.W. ASKED SLA TO LOOK INTO DESIGN CONSTRAINT FOR TRAMP LOCATED IN EXISTING GABIONS FURTHER UPS NEARER TO THE BRIDGE.

C.O.G WILL PAY FOR THIS CONSTR. AND WANTS TO HAVE THE WORK SEPARATED AS AN ALTERNATE BID ITEM.

* ALSO R.W. SAID THE LEVEE DOWNSTREAM OF STA 245+0 WILL REMAIN AS DESIGNED.

THE LAND ON NORTH BANK WILL COST F.C.D. APPROX. \$ 400,000.

cc: BSB
File

INFORMATION

ACTION



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

2801 W. Durango, Phoenix, Arizona 85009

Fax: (602) 506-8561

Office: (602) 506-8945

COVER SHEET

To: Bart Bergendahl

Company or Department: SLA Fax No. 491 1396

From: RW

Number of pages being sent including Cover Sheet: 3

Comments: Please find herewith the spec for Hazardous Wastes.

Also I spoke with John Palmieri of our Lands Dept. he said the cost to buy the 9+ acres west of 51st AV north of Skunk Creek is about \$400K I fill this can be justified. If you disagree please call.

212.2.3 - Tires

During the excavation of the landfill material and prior to its disposal, the Contractor shall search for, remove and stockpile on-site tires contained in the landfill material. After completion of the excavation, the Contractor shall load, haul and dispose of the tires at an approved tire disposal site.

212.2.4 - Hazardous Wastes

Based on available information and from the analysis of the test pits, it is not anticipated that hazardous wastes will be encountered. However, the Contractor may encounter household chemical products and hazardous waste from small-quantity generators. Contractor's suspicion of potential hazardous wastes shall be immediately communicated to the Engineer. The Contractor shall stop working in the area as directed by the Engineer. The area with suspected hazardous wastes shall be barricaded by the Contractor. Should the presence of hazardous wastes be verified, the excavation and removal activities will be suspended and the necessary action taken to resolve the problem. The removal and disposal of any hazardous wastes and materials contaminated with hazardous waste will be performed in accordance with the approved Landfill Excavation Monitoring Plan. Payment for hazardous waste disposal shall be in accordance with Section 213.3. At that time, a change to the contract to account for the disruption would be negotiated with the Contractor.

212.3 - Measurement

Field estimates have been made of the quantities of construction debris and organic waste landfill material anticipated to be encountered on the project. Exact measurements cannot be made at this time and will be determined in the field. Quantities of construction debris will be measured by the cubic yard, as measured in place using field surveyed cross-sections.

212.4 - Payment

Payment for construction debris and organic waste and tire removal and disposal will be paid for using separate unit prices as indicated in the Bid Schedule.

Construction debris shall be paid for at the Contract unit price per cubic yard for Item 212-1 and 212-2 in the Bid Schedule.

Organic material shall be paid for at the Contract unit price per ton for Item 212-3 in the Bid Schedule.

Tires shall be paid for at the Contract unit price per ton for Item 212-4 in the Bid Schedule.

The Contract unit price shall include the costs of furnishing all equipment, labor and materials as necessary to remove landfill material, transport and dispose of this material either through compaction at a designated landfill site, or hauling to a municipal waste site.

212.2.3 - Tires

During the excavation of the landfill material and prior to its disposal, the Contractor shall search for, remove and stockpile on-site tires contained in the landfill material. After completion of the excavation, the Contractor shall load, haul and dispose of tires at an approved tire disposal site.

212.2.4 - Hazardous Wastes

Based on available information and from the analysis of the test pits, it is not anticipated that hazardous wastes will be encountered. However, the Contractor may encounter household chemical products and hazardous waste from small-quantity generators. All hazardous wastes shall be immediately communicated to the Engineer.

Add the following new section on page CSP-15:

"212.2.5 - Asphalt Material, Disposal

A-3

The Engineer may or may not direct that this optional section be utilized. If so directed to use, the Contractor shall separate asphalt excavated within existing river banks and dispose of asphalt off-site (either at an asphalt recycler, approved commercial landfill, or equally accepted location as approved by the Engineer). Any associated costs for such separation and disposal shall be included in the bid item for this work. Separation methods include screening, loader sorting, or equally effective methods."

212.3 - Measurement

Field estimates have been made of the quantities of construction debris and organic waste material anticipated to be encountered on the project. Exact measurements cannot be made at this time and will be determined in the field. Quantities of construction debris will be measured by the cubic yard, as measured in place using field surveyed cross-sections.

212.4 - Payment

Payment for construction debris and organic waste and tire removal and disposal will be made for using separate unit prices as indicated in the Bid Schedule.

Construction debris shall be paid for at the Contract unit price per cubic yard for Item 212-2 in the Bid Schedule.

Organic material shall be paid for at the Contract unit price per ton for Item 212-3 in the Bid Schedule.

Tires shall be paid for at the Contract unit price per ton for Item 212-4 in the Bid Schedule.

The Contract unit price shall include the costs of furnishing all equipment, labor and material as necessary to remove landfill material, transport and dispose of this material either by compaction at a designated landfill site, or hauling to a municipal waste site.



Transmittal Letter

To: ACD Date: Nov. 19, 1997
2801 West Durango
Phoenix, AZ 85009

Attention: R.W. Shobe Project Number: PAZ-MC-17

Skunk Creek Channel Improvements

Enclosed please find:

Copies of
2 Full-size 60% Plans - Phase I
2 " " " " - Phase II

- | | | | |
|---|--|--|--|
| <input checked="" type="checkbox"/> Forwarded | <input checked="" type="checkbox"/> Prints | <input type="checkbox"/> For Approval | <input type="checkbox"/> Mail |
| <input type="checkbox"/> Returned | <input type="checkbox"/> Originals | <input checked="" type="checkbox"/> As Requested | <input type="checkbox"/> Express Courier |
| | <input type="checkbox"/> Reports | <input type="checkbox"/> For Your Use | <input checked="" type="checkbox"/> Hand Delivered |
| | <input type="checkbox"/> Disks | <input type="checkbox"/> For Your Files | |

Remarks _____

From [Signature]