

WHEN RECORDED, MAIL TO:

**CITY OF SAN LUIS
ATTN: CITY CLERK
P.O. BOX 1170
SAN LUIS, ARIZONA 85349**

2023-08202 RESOLUTION
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Richard Colwell County Recorder, YUMA County AZ



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CAPTION HEADING:

RESOLUTION

Resolution No. 2236
Intergovernmental Agreement
Bureau of Reclamation
B.O.R. Contract No. 22-07-34-L2109
Cesar Chavez Boulevard Widening



Resolution

OFFICE OF THE
MAYOR
CITY OF SAN LUIS

No. 2236

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF SAN LUIS, ARIZONA, APPROVING AN INTERGOVERNMENTAL AGREEMENT WITH THE BUREAU OF RECLAMATION (“B.O.R”) FOR SAN LUIS TO CONSTRUCT, INSTALL, OWN, USE OPERATE AND MAINTAIN LAND FOR IMPROVEMENT OF CESAR CHAVEZ BOULEVARD IN THE CITY OF SAN LUIS UNDER B.O.R. CONTRACT NO. 22-07-34-L2109.

WHEREAS, the City of San Luis submitted a transportation and utility systems and facilities federal land application to the Bureau of Reclamation; and

WHEREAS, the City requires right of way in order to widen Cesar Chavez Boulevard; and

WHEREAS, the Bureau of Reclamation requires state or local governments to provide authorization to execute the license;

NOW, THEREFORE, BE IT RESOLVED by the Mayor and City Council of the City of San Luis, Arizona:

Section 1. The Mayor and City Council deem that it is in the best interest of the City of San Luis’ residents to enter into an intergovernmental agreement with the United States of America through the Department of the Interior, Bureau of Reclamation to permit the city to widen Cesar Chavez Boulevard.

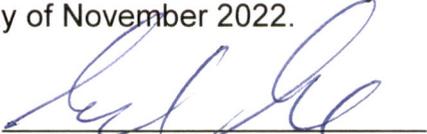
Section 2. A true copy of the intergovernmental agreement (B.O.R Contract No. 22-07-34-L2109) is incorporated herein as though set forth again in full.

Section 3. The Mayor is authorized and directed to execute said agreement for and on behalf of the City of San Luis.

Section 4. City officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this Order.

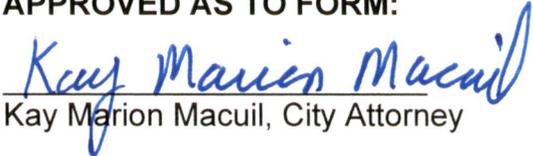
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PASSED, ADOPTED, and APPROVED by the Mayor and City Council of the City of San Luis, Yuma County, Arizona, this ~~22nd~~ day of November 2022.



Gerardo Sanchez, Mayor

APPROVED AS TO FORM:



Kay Marion Macuil, City Attorney

ATTEST:


Sonia Cornelio, City Clerk

**DUPLICATE
ORIGINAL**

Contract No. 22-07-34-L2109

1
2
3
4
5 UNITED STATES
6 DEPARTMENT OF THE INTERIOR
7 BUREAU OF RECLAMATION
8 INTERIOR REGION 8: LOWER COLORADO BASIN
9 YUMA AREA OFFICE
10 YUMA, ARIZONA

11
12 YUMA PROJECT, VALLEY DIVISION

13
14 CONTRACT AND LICENSE
15 FOR
16 CESAR CHAVEZ BOULEVARD WIDENING
17

18 1. THIS CONTRACT AND LICENSE (License) is made this 16 day of February, 2023
19 pursuant to provisions of the Reclamation Act of June 17, 1902 (32 Stat. 388); the Reclamation
20 Project Act of August 4, 1939 (53 Stat. 1187); as amended August 18, 1950 (64 Stat. 463); and
21 acts amendatory thereof or supplementary thereto; and the provisions of 43 CFR § 429, between
22 the United States of America, acting through the Bureau of Reclamation, hereinafter referred to
23 as "Reclamation," represented by the officer executing this License, hereinafter referred to as the
24 "Area Manager," and the City of San Luis (City) hereinafter referred to as the "Licensee," with
25 the concurrence of the Yuma County Water Users' Association, hereinafter referred to as the
26 "Association."

27
28 WITNESSETH THAT:
29

30 2. WHEREAS, Reclamation, under the authority of the Act of August 30, 1890, entitled
31 Rights-of-Way Reserved to United States for Canals and Ditches (26 Stat. 391), holds reserved
32 Federal right-of-way for the canals identified as the Yuma Main Canal and the Yuma Valley
33 Main Drain, hereinafter referred to as the Canal and Drain, features of the Yuma Project, Valley
34 Division, Arizona; and
35

36 3. WHEREAS, by Secretarial Order dated January 31, 1903, and April 9, 1904, certain
37 Federal lands were withdrawn from public domain for Reclamation's project purposes, these
38 lands are hereinafter referred to as withdrawn lands; and
39

40 4. WHEREAS, the United States, through Public Notice No. 77 dated February 12, 1960,
41 granted the Association authority to process and approve requests for certain uses of the Valley
42 Division, Yuma Project rights-of-way when the applicant's proposed use of such rights-of-way is
43 compatible with the care, operation, and maintenance of the Valley Division; and
44

45 5. WHEREAS, Reclamation holds certain lands in withdrawal for the Yuma Valley Main
46 Drain, the East Main Canal, and monitoring wells, all features of the Yuma Project, Valley
47 Division, Arizona which are necessary for project purposes and hereinafter referred to as
48 "Reclamation Facilities"; and

49
50 6. WHEREAS, on January 14, 2022, Reclamation received forwarded application from the
51 Yuma Field Office, Bureau of Land Management, signed on July 27, 2020, by the City of
52 Reclamation, the Licensee requested a right-of-use authorization to widen the current existing
53 Cesar Chavez Boulevard from a two (2) lane road to a four (4) lane road; and

54
55 7. WHEREAS, the granting of such authorization and right-of-use by Reclamation and the
56 exercise of such right-of-use by the Licensee under the terms and conditions herein provided
57 shall be compatible with the purposes for which the lands are administered by Reclamation on
58 behalf of the United States.

59
60 8. NOW THEREFORE, in consideration of the mutual agreements and covenants contained
61 herein, Reclamation, on behalf of the United States, by this Contract and License, hereby grants
62 to the Licensee, except as otherwise provided herein, the following described authorization for
63 the construction, installation, ownership, use, operation and maintenance of a four (4) lane road
64 and appurtenant other facilities, hereinafter referred to as the "Improvements," to wit:

65
66 9. DESCRIPTION OF PREMISES

67
68 Gila and Salt River Meridian, Yuma County, Arizona

69
70 Township 11 South, Range 24 West,
71 sections 3, 4, 5, 6, 7, 8, and 9, portions of

72
73 Township 11 South, Range 25 West,
74 section 1, portions of.

75
76 The lands described above are hereafter referred to as the Premises. Said Improvements are
77 more fully described and depicted on those captions entitled Exhibit A: "Location Map of
78 Proposed New Right-of-Way,"; and Exhibit B: "Right-of-Way Map," all attached hereto and by
79 this reference made a part hereof.

80
81 (a) By accepting and signing this License, and by using the Premises described herein,
82 the Licensee agrees to comply with and be bound by the terms and conditions described or
83 referenced herein during all construction, installation, ownership, use, operation, maintenance,
84 termination, and relocation (if required and as hereinafter provided) activities of said
85 Improvements.

86

87 10. OWNERSHIP OF IMPROVEMENTS: The Licensee shall at all times and at its sole
88 expense, without any expense and/or liability whatsoever to the United States, Reclamation
89 and/or the Association, construct, install, own, use, operate, maintain, and make necessary
90 repairs to or replacements of the Improvements in a manner so as not to interfere with the proper
91 use and operation of or cause injury or damage to any property or waters of the United States,
92 property of the Association, and/or any other facilities or project works of Reclamation and/or
93 the Association. The Licensee shall reimburse Reclamation and/or the Association for all injury
94 or damage to said property, waters, other facilities, and/or project works arising out of the
95 utilization of the rights granted pursuant to this License which is caused by the Licensee; and the
96 Licensee shall promptly pay any invoice rendered therefore by Reclamation and/or the
97 Association.

98
99 11. WATER: Nothing contained in this License shall be deemed to entitle the Licensee to, nor
100 shall be construed as granting any rights to obtain water from the United States, and no wells
101 shall be constructed or installed on the lands covered by this License.

102
103 12. TERM:

104
105 Improvements: This License, unless otherwise terminated as provided for in Article 13
106 herein, shall terminate twenty-five (25) years from the date hereof. This License may, upon
107 written agreement of the parties, be extended for an additional twenty-five (25) year term. Any
108 request for extension shall be filed by the Licensee, in writing, with the Area Manager not less
109 than one hundred eighty (180) days prior to termination of the License.

110
111 13. TERMINATION:

112
113 (a) This License shall terminate, and all rights granted to the Licensee hereunder shall
114 cease, and the Licensee shall quietly deliver to Reclamation possession of the Premises in like
115 condition as when taken, reasonable wear and tear excepted:

116
117 (1) At the expiration of the term as provided in Article 12.

118
119 (2) For nonuse of the Premises by the Licensee for a period of two (2) years
120 following the execution of this License, at the option of Reclamation.

121
122 (3) After failure of the Licensee to observe any of the conditions of this License, to
123 include payment of any and all sums due to Reclamation as set forth herein, and on the tenth
124 (10th) day following service of written notice on the Licensee of termination because of failure
125 to observe such conditions. Any notice required by this Article shall be served by certified mail
126 addressed to the respective post office addresses provided in Article 25, and the mailing of any
127 such notice properly enclosed, addressed, stamped, and certified, shall be considered service.

128

129 (4) Reclamation may, at any time and at no cost or liability to the United States,
130 terminate this License in the event of a natural disaster, a national emergency, a need arising
131 from security requirements, or an immediate and overriding threat to public health and safety.
132

133 (5) Reclamation may, at any time and at no cost or liability to the United States,
134 terminate any use authorization for activities other than existing authorized private exclusive
135 recreational or residential use as defined under 43 CFR § 429.2 (2016) if Reclamation
136 determines that any of the following apply:
137

138 (i) The use has become incompatible with authorized project purposes,
139 project operations, safety, and security;
140

141 (ii) A higher public use is identified through a public process described at
142 43 CFR § 429.32(a)(1) (2016); or
143

144 (iii) Termination is necessary for operational needs of the project.
145

146 (6) Reclamation may, at any time and at no cost or liability to the United States,
147 terminate this License if it determines that the Licensee has used this License for any purpose
148 other than its intended purpose.
149

150 (7) Reclamation may, at any time and at no cost or liability to the United States,
151 terminate this License if the Licensee fails to comply with all applicable Federal, State, and local
152 laws, regulations, ordinances, Executive Orders, and Reclamation Laws, policies, and directives
153 and standards, existing or hereafter enacted or promulgated, or terms and conditions of any use
154 authorization, or to obtain any required permits or authorizations.
155

156 (8) Upon the expiration, termination, or revocation of this License, if all use fees
157 and damage claims due Reclamation have been paid, the Licensee may be required, at the option
158 of Reclamation, to remove any or all of the Improvements placed upon the Premises and shall
159 restore the Premises to a condition satisfactory to the Area Manager. Should Licensee fail to
160 remove the Improvements within 60 days of expiration, termination, or revocation of this
161 License, the Area Manager may, on behalf of Reclamation, deny and prohibit any or all access to
162 the Improvements and Premises. At the option of Reclamation, any remaining Improvements
163 may become property of the United States or be removed at the expense of the Licensee.
164 The Licensee shall promptly pay all expenses incurred by Reclamation for removal and
165 restoration upon its receipt of an invoice for the same.
166

167 (9) Should this License be terminated, Reclamation, reserves the right to bar the
168 Licensee from the authorization to use Reclamation withdrawn lands for a period of time, as
169 determined by the Area Manager.
170

171 14. TERMINATION OF LICENSE BY THE LICENSEE: This License may be terminated at
172 any time by the Licensee upon sixty (60) days written notice to Reclamation. Should the
173 Licensee exercise its option to terminate this License, all rights granted the Licensee hereunder
174 shall cease, and the Licensee shall quietly deliver to Reclamation possession of the Premises in
175 like condition as when taken, reasonable wear and tear excepted.

176
177 15. ADMINISTRATIVE COSTS AND USE FEES: In accordance with regulations found at
178 43 CFR § 429.26 (a)(3), consideration for this License shall be waived.

179
180 16. EXCEPTIONS AND RESERVATIONS:

181
182 (a) Reclamation and the Association reserve the right of their officers, employees, and
183 agents to at all times have unrestricted access and ingress to, passage over, and egress from all of
184 the Premises to make investigations of all kinds, dig test pits and drill test holes, to survey for,
185 operate, and maintain existing Reclamation works and other facilities, and to construct
186 reclamation and irrigation works and other structures incident to Reclamation project needs and
187 purposes. Reclamation and the Association shall have no obligation to restore the Licensee's
188 Improvements if Reclamation and the Association exercise their rights reserved herein. All
189 costs, expenses, obligations, and duties, to restore any part of the Licensee's Improvements shall
190 be incurred by the Licensee.

191
192 (b) The rights granted hereunder shall not be exclusive in character and Reclamation and
193 the Association reserve to themselves, their successors and assigns, the right against the Licensee
194 to use any or all of the Premises, which is or may be crossed, or upon which irrigation and
195 drainage facilities and works of Reclamation and the Association have been constructed, and to
196 construct, reconstruct, operate, and maintain therein and thereon works including, but not limited
197 to, dams, dikes, canals, waste ways, laterals, ditches, telephone and telegraph lines, electric
198 transmission lines, roadways, and appurtenant irrigation and drainage structures which may be
199 needed or useful in connection with or as part of canals, laterals, and other irrigation and
200 drainage facilities without any payment by Reclamation or the Association, its successors and
201 assigns, for the exercise of such right. The Licensee agrees that if the construction,
202 reconstruction, installation, operation, or maintenance of any or all of such works of
203 Reclamation, on or across the Premises, should be made more expensive by reason of the
204 existence of the Licensee's Improvements, such additional expense may be estimated by
205 Reclamation or the Association whose estimate shall be final and binding upon the parties
206 hereto, and within thirty (30) days after demand is made upon the Licensee for payment of any
207 such sums, the Licensee shall make payment thereof to Reclamation and the Association, its
208 successors and assigns, for constructing, operating, or maintaining such works across, over,
209 under or upon the Premises.

210
211

212 (c) Reclamation and the Association reserve the right to inspect the Licensee's
213 Improvements under the terms of this License both during the progress of construction and upon
214 completion thereof and anytime thereafter.

215
216 (d) Jurisdiction of and supervision by Reclamation over the Premises is not surrendered
217 or subordinated by issuance of this License and Reclamation reserves the right to issue additional
218 use authorizations and other agreements for compatible use of the Premises.

219
220 17. TERMS AND CONDITIONS: In use of the Premises, the Licensee shall faithfully
221 observe each of the following conditions:

222
223 (a) The Licensee, at its sole expense, shall construct, install, own, use, operate, and
224 maintain Licensees' Improvements in conformity with all applicable Federal, State, and local
225 laws, regulations, ordinances, Executive Orders, and Reclamation Laws, policies, and directives
226 and standards, existing or hereafter enacted or promulgated, including but not limited to, those
227 relating to pollution and environmental control.

228
229 (b) The Licensee shall be solely responsible for, and insure that, said Improvements are
230 installed in accordance with Exhibits A and B, as approved by the Area Manager and the
231 Association.

232
233 (c) All construction, reconstruction, installation, ownership, use, operation, and
234 maintenance activities undertaken pursuant to this License shall be in conformity with the
235 specifications approved in advance by the Area Manager and the Association and shall be
236 conducted by the Licensee at all times in a manner satisfactory to the Area Manager and the
237 Association.

238
239 (d) The Licensee shall at all times, and at its sole expense, operate and maintain and
240 make necessary repairs and replacements on said Licensee Improvements in a good and
241 workmanlike manner so as not to interfere with the proper use and operation of, or caused injury
242 or damage to any property, irrigation, and drainage facilities, or works of Reclamation. All
243 equipment installed, operated, and maintained pursuant to this License will be maintained in a
244 safe condition satisfactory to the Area Manager and the Association. The Licensee will
245 reimburse Reclamation for all injury or damage to property, irrigation and drainage facilities, or
246 works of Reclamation arising out of the utilization of the rights granted pursuant to this License
247 which is caused by the Licensee, its officers, agents, or employees, and the Licensee will
248 promptly pay any bills rendered therefore by Reclamation.

249
250 (e) During construction and use of the Premises, the Licensee shall carry out proper and
251 efficient measures wherever and as often as necessary to reduce nuisance by dust, and to prevent
252 dust which has originated from its operations from damaging any other properties or causing a
253 nuisance to persons.

254
255 (f) The Licensee shall reimburse Reclamation and the Association for any and all costs
256 and expenses incurred in the defense of any action which challenges the Licensee's use of the
257 Premises.

258
259 (g) The rights granted by this License are subject to any and all applicable Federal, State,
260 and local laws, regulations, ordinances, Executive Orders, and Reclamation Laws, policies and
261 directives and standards, existing or hereafter promulgated, and rights of Reclamation, the
262 United States, and to existing rights in favor of the public or third parties. The Licensee agrees
263 that it is its sole responsibility to make whatever arrangements as are necessary to obtain such
264 rights as may be required of the Licensee from any other party or parties holding any other
265 interests.

266
267 (h) The Licensee shall notify the Area Manager and Association within ninety (90) days
268 of substantial completion of installation, and within said ninety (90) days shall undertake
269 customary and prudent measures to smooth, recontour, clean, remove debris, grade, scarify,
270 repair, restore, or otherwise rehabilitate the lands, water, structures, and other facilities of
271 Reclamation that were disturbed to a condition of appearance and stability comparable to the
272 surrounding undisturbed lands, to the satisfaction of the Area Manager and Association.

273
274 (i) The Licensee shall not issue or grant easements, rights-of-way, land rights, leases,
275 licenses, permits, crossing agreements, recreational or special use agreements, and shall not
276 allow commercial ventures on the Premises. Any such use instruments shall be issued by
277 Reclamation only.

278
279 (j) The Licensee shall ensure the Premises and surrounding area are maintained in a
280 sanitary condition at all times.

281
282 (k) All trash and debris shall be removed upon leaving the Premises each day during
283 construction activities.

284
285 (l) The Licensee shall not make any alteration of said Reclamation Facilities within the
286 Reclamation lands and/or rights-of-way without prior written concurrence of Reclamation and
287 the Association.

288
289 (m) The Licensee shall ensure that no unauthorized encroachment occurs, and no waste is
290 committed, on Reclamation withdrawn lands under this License.

291
292 (n) The Licensee shall have the right to allow its agents, contractors, and subcontractors
293 to use Reclamation withdrawn lands under this License for the purposes stated herein.

294
295

296 (o) The Licensee shall promptly reimburse Reclamation and/or the Association for all
297 damages to Reclamation withdrawn lands, waters, other facilities, and/or project works, arising
298 out of the construction, reconstruction, installation, operation, maintenance, use, termination, or
299 removal by the Licensee of the Licensee's Improvements located on Reclamation withdrawn
300 lands under this License, provided, however, that if Reclamation and/or the Association does not
301 use the payment to repair such damages, Reclamation and/or the Association shall not recover
302 additional payment for such damages at the time of termination of this License.

303
304 (p) The Licensee shall not use the Premises or permit the use thereof for any purposes
305 except as set forth herein.

306
307 18. SPECIAL CONDITIONS: In use of the Premises, the Licensee shall faithfully observe
308 each of the following conditions:

309
310 (a) Any construction and Improvement activity beyond the Premises is not authorized by
311 the United States, Reclamation, or this License.

312
313 (b) Prior to commencing any construction activities, the Licensee shall obtain the
314 Association's written approval and stipulations as indicated by the Association's issuance of a
315 Construction Encroachment Permit to the Licensee and/or its contractor for the installation of
316 Licensees' Improvements. Licensee shall insure coordination with Association prior to
317 commencing any construction or installation activity, and during all construction, installation,
318 operation, maintenance, replacement, repair and termination activities of the Licensees'
319 Improvements within Reclamation's withdrawn and/or rights-of-way, including inspection as
320 required by Reclamation and/or the Association during and after construction, and shall be
321 conducted in strict compliance with all stipulations as set forth in said Construction Permit.

322
323 (c) The Licensee shall provide a construction schedule and seventy-two (72) hour notice
324 to Reclamation prior to the start of any construction activity. Said seventy-two (72) hour notice
325 shall be provided to Reclamation's Technical Support Office, Construction Services Group
326 Manager, Mr. Alex Belous, at telephone No, 928-343-8314 and/or by electronic mail at
327 abelous@usbr.gov, so that a Reclamation Inspector can attend any pre-construction meetings and
328 be on site during construction and installation activities.

329
330 (d) The Licensee shall provide a construction schedule and seventy-two (72) hour notice
331 to the Association prior to the start of any construction activity. Said seventy-two (72) hour
332 notice shall be provided to the Association's Engineering Technician, Mr. Omar Peñuñuri at
333 telephone No. 928-627-8824 so that an Association representative can attend any pre-
334 construction meetings and be on site during construction and installation activities.

335
336

337 (e) The Licensee must follow Reclamation's requirements for crossing of Reclamation
338 projects and other facilities which are found in Reclamation's "Engineering and O&M
339 Guidelines for Crossings – Bureau of Reclamation Water Conveyance Facilities (Canals,
340 Pipelines, and Similar Facilities)" as described and depicted on Exhibit C, attached hereto and by
341 this reference made a part hereof.

342
343 (f) The Licensee shall be solely responsible for, and insure that, Reclamation and
344 Association projects and other facilities, projects and /or other related facilities, and Reclamation
345 withdrawn lands and waters, Reclamation Facilities and appurtenant structures, are protected
346 during the construction, installation, use, operation, maintenance, termination, or relocation
347 activities authorized herein.

348
349 (g) The Licensee shall be liable for any costs associated with repairs of Reclamation
350 and/or the Association facilities, structures, or project works of Reclamation if damaged during
351 the construction, installation, use, operation, maintenance, termination, or relocation activities
352 authorized herein.

353
354 (h) The Licensee shall be solely responsible for, and insure that, Reclamation Facilities
355 and appurtenant structures are protected during all Improvement activities. Licensee will be
356 liable to Reclamation for any costs associated with repairs of structures, other facilities, or
357 project works of Reclamation if damaged during such activities.

358
359 (i) The Licensee shall protect all properties owned and/or previously permitted by
360 Reclamation within its withdrawn lands and rights-of-way.

361
362 (j) The Licensee shall be solely responsible for, and insure that, Reclamation and the
363 Association have access to the Premises at all times during construction, installation, use,
364 operation, maintenance and termination activities of Reclamation Facilities and appurtenant
365 structures and/or Reclamation Facilities. Nothing shall prevent Reclamation and/or the
366 Association from construction, operation, maintenance, removal, expansion, improving,
367 relocation and/or replacement of Reclamation Facilities and appurtenant structures and/or
368 Reclamation Facilities, or the delivery of water through these facilities.

369
370 (k) Any provider intending to install or construct any utilities and/or other improvements
371 on the Premises not specifically authorized by this License shall make separate application to
372 Reclamation and/or the Association for authorization and right-of-use prior to any construction
373 or installation.

374
375 (l) The Licensee shall be solely responsible for, and ensure that, no material of any kind
376 is discharged into Reclamation and/or Association facilities.

377
378

379 (m) The Licensee shall restore and repair, if necessary, the Premises and surrounding area
380 to its original condition or improved and in a manner satisfactory to Reclamation and the
381 Association.

382
383 (n) Reclamation and the Association retain all rights previously reserved and the
384 authority to enter upon the Premises.

385
386 (o) Reclamation and the Association maintain the right to require that Licensee remove
387 the Improvements if deemed necessary for maintenance or related activities performed within
388 Reclamation Facilities and appurtenant structures, withdrawn lands and/or other facilities.

389
390 (p) Any damage to the Licensee's Improvements or its related features caused by
391 operation and maintenance activities of Reclamation and/or the Association on project works
392 and/or other facilities shall be the sole responsibility of the Licensee to repair and/or replace, and
393 the United States, Reclamation, and/or the Association shall have no financial responsibility for
394 any such repairs and/or replacements.

395
396 (q) The Licensee shall reimburse Reclamation and/or the Association for any additional
397 costs incurred in the operation and maintenance of Reclamation and/or Association other
398 facilities which are attributable to the Licensee's Improvements and its related features.

399
400 (r) Within ninety (90) calendar days of the completion of the construction and
401 installation of the Licensee's Improvements, the Licensee shall furnish Reclamation and the
402 Association each with as-built drawings depicting the location, elevation, and depth and
403 dimensions of said Improvements, as installed. Said drawings shall be provided to Reclamation
404 and the Association to include one (1) 11x17 sized set of drawings, one copy in PDF format, and
405 one electronic copy of the drawings in AutoCad format, or compatible. Electronic drawings
406 shall be provided to Reclamation by e-mail to Ms. Anna Sander, Realty Technician at:
407 asander@usbr.gov.

408
409 (s) In case of emergency involving the withdrawn lands Reclamation Facilities, the
410 Licensee shall immediately notify Reclamation at telephone No. 928-343-8100 and the
411 Association at telephone No. 928-627-8824.

412
413 (t) The Licensee hereby agrees to incur all costs, expenses, obligations, and duties to
414 restore the Licensee's Improvements in the event Reclamation and/or the Association exercise
415 their rights reserved herein.

416
417 (u) Reclamation will accept no responsibility for the structural adequacy of the
418 Improvements. Approval is based on the construction and installation of the Improvements only.

419
420

421 (v) This authorization to use Reclamation's withdrawn and rights-of-way shall not be
422 construed as a grant of any permanent ownership and/or interest or as abandonment by the
423 United States or Reclamation of any rights, including but not limited to, use and occupancy of
424 the Premises, and/or Reclamation's withdrawn and rights-of-way.

425
426 (w) All on-site personnel will be personally instructed by Licensee regarding the
427 above-listed conditions.

428 GENERAL PROVISIONS

429

430 19. HOLD HARMLESS:

431

432 (a) Reclamation: The Licensee hereby agrees to indemnify and hold harmless
433 Reclamation, its officers, employees, agents, and assigns, from any loss or damage and from any
434 liability on account of personal injury, property damage, or claims for personal injury or death
435 arising out of the Licensee's activities under this License. Additionally, except for acts of
436 negligence, the Licensee releases Reclamation, its officers, employees, agents, and assigns, from
437 any and all liability for damage arising from injury to persons or damage to structures,
438 equipment, improvements, or works of the Licensee resulting from the construction,
439 reconstruction, operation, or maintenance of any of the works of Reclamation. Provided,
440 however, that nothing contained in this clause shall be deemed to modify or limit any liability
441 which may be imposed by the Federal Tort Claims Act, 28 U.S.C. § 2671-2680.

442

443 (b) Association: The Licensee shall indemnify, defend, and hold harmless the
444 Association, its officers, directors, employees, agents, representatives, successors, and assigns,
445 from and against all claims, costs, losses, damages, demands, liabilities, and expenses (including,
446 but not limited to, all fees and charges of attorneys and other professionals, and all court or
447 arbitration or other dispute resolution costs) of any kind or character arising out of or relating to:

448

449 (1) Any act or omission by the Licensee or its representatives, to include its
450 employees, agents, contractors, subcontractors, or any other persons directly or indirectly
451 employed by any one of the foregoing, or reasonably under the control of any of the foregoing,
452 or for whose acts any of the foregoing may be liable (collectively, "Representatives"), in
453 connection with the rights granted to Licensee pursuant to this License;

454

455 (2) Any violation or alleged violation by the Licensee or its Representatives of any
456 law or regulation now or hereafter enacted;

457

458 (3) Any breach by the Licensee of its obligations under this License; and

459

460

461 (4) Any enforcement by the Association of any provision of this License; provided,
462 however, the foregoing indemnification shall not apply to the extent any claim is ultimately
463 established by a court of competent jurisdiction to have been caused by the gross negligence or
464 willful misconduct of the Association, its officers, directors, employees, agents, representatives,
465 successors, and assigns.
466

467 20. DISCOVERY OF CULTURAL RESOURCES: The Licensee shall immediately provide a
468 verbal notification to Reclamation's Environmental Planning and Compliance Group Manager at
469 telephone No. 928-343-8100 of the discovery of any and all antiquities or other objects of
470 archaeological, cultural, historic, or scientific interest on or within the Premises. The Licensee
471 shall follow up with a written report of their finding(s) to Reclamation within forty-eight (48)
472 hours. Objects under consideration include but are not limited to historic or prehistoric ruins,
473 human remains, funerary objects, and artifacts discovered as a result of activities authorized
474 under this License. The Licensee shall immediately cease its activity in the area of the
475 discovery, make a reasonable effort to protect such discovery, and wait for written approval from
476 Reclamation before resuming activity. Protective and mitigative measures specified by
477 Reclamation shall be the responsibility of the Licensee.
478

479 21. CLEAN AIR AND WATER: The Licensee agrees as follows:
480

481 (a) To comply with all Federal, State, and local requirements of the Clean Air Act of
482 1955, Pub. L. No. 84-159, 69 Stat. 322, as supplemented and amended (CAA), and the
483 Federal Water Pollution Control Act of 1948, Pub. L. No. 80-845, 62 Stat. 1155, as
484 supplemented and amended (CWA); and
485

486 (b) To obtain written permission from Reclamation prior to conducting any activities that
487 require permits, plans, or certificates under the CAA or the CWA; and
488

489 (c) To provide Reclamation with a copy of any correspondence between the Licensee
490 and any regulatory agency concerning CAA or CWA compliance, including but not limited to
491 copies of permit applications, permits, reports, notices of violation, or enforcement actions; and
492

493 (d) To take immediate and effective action to correct any violation related to the CAA or
494 the CWA. The Licensee shall provide Reclamation with a narrative description of the violation,
495 the actions taken by the Licensee, the date the violation began, the date that the Licensee became
496 aware of the violation, and the date that the Licensee returned to compliance; and
497

498 (e) To take action to comply with any changes to the CAA and the CWA within the
499 schedule required by the regulation, rule, or guidance.
500
501

502 22. HAZARDOUS MATERIALS: During the performance of any activity on the Premises, the
503 Licensee agrees as follows:

504
505 (a) The Licensee shall not allow contamination or pollution of withdrawn lands, waters,
506 other facilities, and/or project works of Reclamation for which the Licensee has the
507 responsibility for care, operation, and maintenance by its Representatives and shall take
508 reasonable precautions to prevent such contamination or pollution by third parties. Substances
509 causing contamination or pollution shall include but are not limited to hazardous materials,
510 thermal pollution, refuse, garbage, sewage effluent, industrial waste, petroleum products, mine
511 tailings, mineral salts, misused pesticides, pesticide containers, or any other pollutants.

512
513 (b) The Licensee shall comply with all applicable Federal, State, and local laws,
514 regulations, ordinances, Executive Orders, and Reclamation Laws, policies, and directives and
515 standards, existing or hereafter enacted or promulgated, concerning any hazardous material that
516 will be used, produced, transported, stored, or disposed of on or in Reclamation withdrawn lands,
517 waters, facilities, and/or project works.

518
519 (c) "Hazardous material" shall mean any substance, pollutant, or contaminant listed as
520 hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act
521 of 1980, as amended, 42 U.S.C. §§ 9601-9675 (2012), and the regulations promulgated pursuant
522 to that Act.

523
524 (d) Upon discovery of any event which may or does result in contamination or pollution
525 of Reclamation withdrawn lands, waters, facilities, and/or project works, the Licensee shall
526 initiate emergency measures to protect health and safety and the environment if necessary and
527 shall provide notice of such discovery with full details of the actions to Reclamation's
528 Environmental Planning and Compliance Group Manager at telephone No. 928-343-8100.
529 Additionally, all spills regardless of size shall be reported to Reclamation's Environmental
530 Planning and Compliance Group Manager. Such notice shall be within a reasonable time period
531 but not to exceed twenty-four (24) hours from the time of discovery if it is an emergency, and the
532 first (1st) working day if it is a non-emergency. An emergency is any situation that requires
533 immediate action to reduce or avoid endangering public health and safety or the environment.

534
535 (e) Violation of any of the provisions of this Article, upon which the Licensee does not
536 take immediate corrective action, shall constitute grounds for termination of this License and
537 shall make the Licensee liable for the cost of the full and complete remediation and/or restoration
538 of any resources, lands, waters, projects and/or other facilities of Reclamation that are adversely
539 affected as a result of the violation.

540
541 (f) The Licensee agrees to include the provisions contained in paragraphs (a) through (e)
542 of this Article in any entered subcontract or third-party contract authorized by this License.

543

544 (g) Reclamation agrees to provide information necessary to the Licensee for using
545 reasonable diligence to comply with the provisions of this Article.

546
547 23. PESTICIDES: In use of the Premises:

548
549 (a) The Licensee shall not permit the use of any pesticides on withdrawn, waters, other
550 facilities, or project works of Reclamation without prior written authorization from Reclamation.
551 The Licensee shall submit to Reclamation for approval an Integrated Pest Management Plan
552 (IPMP) thirty (30) days prior to pesticide application.

553
554 (b) All pesticides used shall be in accordance with the current registration, label
555 direction, or other directives regulating their use (State Department of Agriculture,
556 Department of Ecology, OSHA, etc.) and with applicable Reclamation policy and directives and
557 standards. Applicators will meet applicable State training or licensing requirements. Records
558 maintenance shall be in accordance with State requirements and furnished to Reclamation no
559 later than five (5) working days after application of a pesticide.

560
561 (c) Any equipment, tools, and machines used for pesticide application shall be in good
562 repair and suitable for such use. Equipment shall be calibrated prior to the spraying season and
563 as deemed necessary by Reclamation.

564
565 (d) Mixing, disposal, and cleaning shall be done where pesticide residues cannot enter
566 storm drains, sewers, or other non-target areas.

567
568 (e) The Licensee shall initiate any necessary measures for containment and clean up of
569 pesticide spills. Spills shall be reported to Reclamation with full details of the actions taken.
570 Reporting must be made within a reasonable time period. A reasonable time period means
571 within twenty-four (24) hours of the spill if it is an emergency or by the first (1st) working day if
572 it is a non-emergency. An emergency is any situation that requires immediate action to reduce or
573 avoid endangering public health and safety or the environment.

574
575 (f) Aerial application of pesticides is prohibited without prior written authorization from
576 Reclamation.

577
578 (g) The Licensee agrees to include the provisions contained in paragraphs (a) through (f)
579 of this Article in any entered subcontract or third-party contract authorized by this License.

580
581

582 24. NONDISCRIMINATION: The Licensee hereby agrees as follows:
583

584 (a) To comply with Title VI of the Civil Rights Act of 1964, § 601, Pub. L. No. 88-352,
585 78 Stat. 241, as supplemented and amended, which provides that “[n]o person in the
586 United States shall, on the ground of race, color, or national origin, be excluded from
587 participation in, be denied the benefits of, or be otherwise subjected to discrimination under any
588 program or activity receiving Federal financial assistance,” and to be bound by the regulations of
589 the Department of the Interior for the effectuation thereof, as set forth in 43 CFR § 17 (2016).
590 For purposes of this subpart, “Federal financial assistance” shall have the meaning prescribed to
591 it by 43 CFR § 17.202(h) (2016).
592

593 (b) To comply with the Rehabilitation Act of 1973, § 504, Pub. L. No. 93-112,
594 87 Stat. 355, as supplemented and amended, which is designed to eliminate discrimination on the
595 basis of disability in any program or activity receiving Federal financial assistance. For purposes
596 of this subpart, “Federal financial assistance” shall have the meaning prescribed to it by
597 43 CFR § 17.12(e) (2016).
598

599 (c) To comply with the Age Discrimination Act of 1975, as supplemented and amended,
600 42 U.S.C. §§ 6101-6107, and the general age discrimination regulations at 45 CFR § 90 (2016)
601 which are designed to prohibit discrimination on the basis of age in programs and activities
602 receiving Federal financial assistance, as set forth in 43 CFR § 17 (2016). For purposes of this
603 subpart, “Federal financial assistance” shall have the meaning prescribed to it by
604 43 CFR § 17.303(h) (2016).
605

606 (d) To obligate its subcontractors, subgrantees, transferees, successors in interest, or any
607 other participants receiving Federal financial assistance hereunder, to comply with the
608 requirements of these provisions.
609

610 25. NOTICES: Any notice, demand, authorization, or request required to be made or given
611 herein shall be served via hand delivery, with signed receipt of acceptance, or by certified mail
612 addressed to the respective addresses given herein and the hand delivery or mailing of any such
613 notice properly enclosed, addressed, stamped, and certified, shall be considered service.
614

615 (a) Any notice, demand, authorization, or request required by this License to be made or
616 given to or upon Reclamation, or the United States, except as otherwise provided herein, shall be
617 deemed properly given or made if hand delivered or mailed postage-prepaid, to the Area
618 Manager, Yuma Area Office, Bureau of Reclamation, 7301 Calle Agua Salada, Yuma, Arizona
619 85364.
620
621

622 (b) Any notice, demand, authorization, or request required by this License to be made or
623 given to or upon the Association shall be deemed properly given or made if hand delivered or
624 mailed postage-prepaid, to the Manager, Yuma County Water Users' Association, P.O. Box
625 5775, Yuma, Arizona 85366-5775.

626
627 (c) Any notice, demand, authorization, or request required by this License to be made or
628 given to or upon the Licensee shall be deemed properly given or made if hand delivered or
629 mailed postage-prepaid, to the City of San Luis, Community Development, 1090 East Union
630 Street, P.O. Box 3750, San Luis, Arizona 85349.

631
632 (d) The designation of the person to or upon whom any notice, demand, authorization, or
633 request is to be given or made, or the address of any such person, may be changed at any time by
634 notice given in the same manner as provided in this Article for other notices.

635
636 26. OFFICIALS NOT TO BENEFIT: No member of or delegate to Congress or Resident
637 Commissioner, and no officer, agent, or employee of the Department of the Interior, shall be
638 admitted to any share or part of this License or to any benefit that may arise herefrom, but this
639 restriction shall not be construed to extend to this License if made with a corporation or
640 contractor for its general benefit.

641
642 27. COVENANT AGAINST CONTINGENT FEES: The Licensee warrants that no person or
643 agency has been employed or retained to solicit or secure this License upon an agreement or
644 understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide
645 employees or bona fide established agencies maintained by the Licensee for the purpose of
646 securing business. For breach or violation of this warranty, Reclamation shall have the right to
647 annul this License without liability or in its discretion to require the Licensee to pay, in addition
648 to the right-of-use consideration, the full amount of such commission, percentage, brokerage, or
649 contingent fee.

650
651 28. ILLEGAL USE: Any activity deemed to be illegal on Reclamation withdrawn lands,
652 waters, project works, or other facilities, shall be cause for immediate termination of this
653 License.

654
655 29. EFFECT OF LICENSE: This License sets forth the intention of the parties hereto as to the
656 purposes set forth herein and Reclamation, makes no other claim or warranty, expressed or
657 implied, as to its extent or validity.

658
659 30. NO WARRANTY: Reclamation makes no warranty, expressed or implied, as to the extent
660 or validity of the grant contained herein.

- 663 31. FURTHER ASSURANCES: The parties hereto shall execute, acknowledge, and deliver
664 such other instruments and documents as may be necessary or appropriate to carry out the full
665 intent and purpose of this License.
666
- 667 32. ARTICLE HEADINGS: The Article headings referenced in this License are included for
668 convenience only and the parties intend that they shall be disregarded in interpreting this
669 License.
670
- 671 33. EXHIBITS: Except as otherwise provided herein, all exhibits attached to this License are
672 incorporated into this License by reference herein and made a part hereof.
673
- 674 34. SUCCESSORS AND ASSIGNS: This License is personal, revocable, and nontransferable
675 and except as otherwise provided herein, shall not be construed as granting to the Licensee any
676 permanent right, title, or interest in the Premises, other facilities, or project works of
677 Reclamation. This License shall be binding upon and inure to the benefit of the successors
678 and/or assigns of the parties hereto; provided, however, that no assignment or transfer of any of
679 the rights of the Licensee hereunder shall be made without the prior written License of
680 Reclamation.
681
- 682 35. SEVERABILITY: Each provision of this use authorization shall be interpreted in such a
683 manner as to be valid under applicable law, but if any provision of this use authorization shall be
684 deemed or determined by competent authority to be invalid or prohibited hereunder, such
685 provision shall be ineffective and void only to the extent of such invalidity or prohibition, but
686 shall not be deemed ineffective or invalid as to the remainder of such provision or any other
687 remaining provisions, or of the use authorization as a whole.

IN WITNESS WHEREOF, the parties hereto have signed their names to this CONTRACT AND GRANT OF LICENSE which shall become effective the day and year first above written.

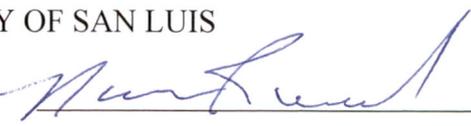
THE UNITED STATES OF AMERICA

By: 
Michael Norris
Area Manager
Yuma Area Office
Interior Region 8: Lower Colorado Basin
Bureau of Reclamation
Department of the Interior

Date: 2/16/23

ACCEPTANCE:

CITY OF SAN LUIS

By: 
Title: Mayor
Date: 12/21/2022

CONCURRENCE:

YUMA COUNTY WATER USERS' ASSOCIATION

By: 
Title: Manag~
Date: 1-3-23

NOTARIAL ACKNOWLEDGMENT

State of Arizona)

County of Yuma)

On this 16 day of February, 2022^{3rd}, before me, Chelle J. Rosas, a Notary Public in and for said County and State personally appeared Michael Norris, Area Manager, Yuma Area
Name

Office, Interior Region 8: Lower Colorado Basin, Bureau of Reclamation, United States Department of the Interior, known to me to be the person described in the foregoing instrument, and acknowledged to me that He executed the same on behalf of the United States of America in the capacity therein stated and for the purpose therein contained.

(Notary Seal)  
Notary Public

Description of document this notarial certificate is being attached to:	
Type/Title	Contract and License
Date of Document	<u>02-16-2023</u>
Number of Pages	18 and Exhibits A, B, and C
Additional Signers (other than those named in the notarial certificate)	City of San Luis Yuma County Water Users' Association

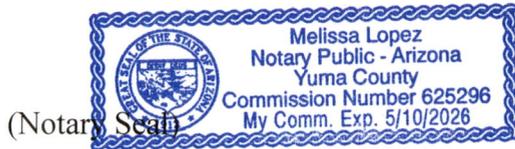
NOTARIAL ACKNOWLEDGMENT

State of Arizona)

County of Yuma)

On this 21st day of December, 2022, before me, Melissa Lopez a Notary Public in and for said County and State personally appeared Nieves Riedel, Mayor of the
 Name Title

City of San Luis, Arizona (City), known to me to be the person described in the foregoing instrument, and acknowledged to me that She executed the same on behalf of the United States of America in the capacity therein stated and for the purpose therein contained.

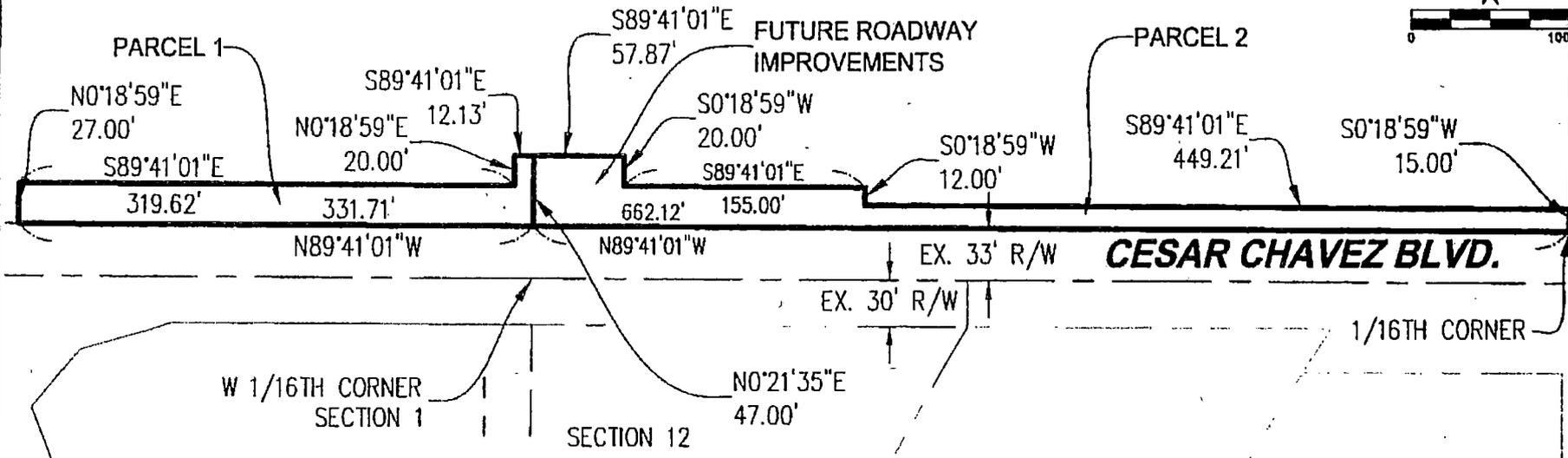
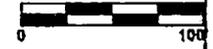
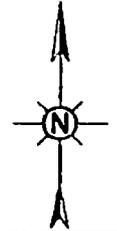


Melissa Lopez
 Notary Public

Description of document this notarial certificate is being attached to:	
Type/Title	Contract and License
Date of Document	
Number of Pages	18 and Exhibits A, B, and C
Additional Signers (other than those named in the notarial certificate)	City of San Luis Yuma County Water Users' Association

RIGHT-OF-WAY MAP SECTIONS 1, TOWNSHIP 11 SOUTH, RANGE 25 WEST

SECTION 1



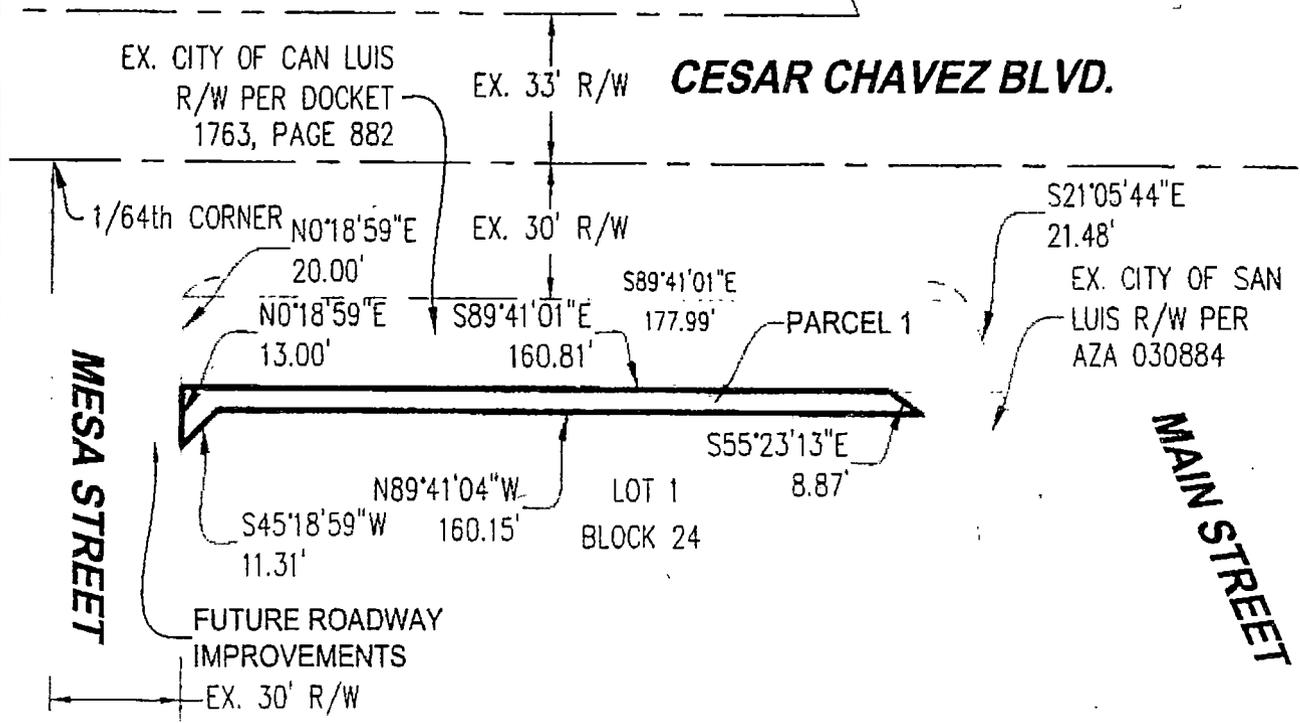
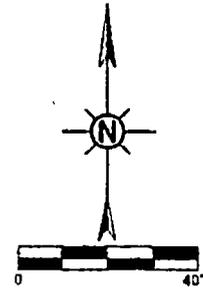
LEGAL DESCRIPTION

Parcel 1
That part of the SW1/4 of the SW1/4 of Section 1, T. 11 S., R.25W., G.S.R.B. & M described as:
Beginning at the West 1/16th corner of Section 1;
Thence N0°21'35"W a distance of 33.00 feet to the True Point of Beginning;
Thence N89°41'01"W a distance of 331.71 feet;
Thence N0°18'59"E a distance of 27.00 feet;
Thence S89°41'01"E a distance of 319.62 feet;
Thence N0°18'59"E a distance of 20.00 feet;
Thence S89°41'01"E a distance of 12.13 feet;
Thence S0°21'35"W a distance of 47.00 feet to the True Point of Beginning;
Consisting of an area 9199 square feet (.21 Acres.)

Parcel 2
That part of the SE1/4 of the SE1/4 Section 1, T. 11 S., R.25W., G.S.R.B. & M described as:
Beginning at the West 1/16th corner of Section 1;
Thence N0°21'35"E a distance of 33.00 feet to the True Point of Beginning;
Thence N0°21'35"E a distance of 47.00 feet;
Thence S89°41'01"E a distance of 57.87 feet;
Thence S0°18'59"W a distance of 20.00 feet;
Thence S89°41'01"E a distance of 155.00 feet;
Thence S0°18'59"W a distance of 12.00 feet;
Thence S89°41'01"E a distance of 449.21 feet;
Thence S0°18'59"W a distance of 15.00 feet;
Thence N89°41'01"W a distance of 662.12 feet to the True Point of beginning;
Consisting of an area 13644 square feet (.31 Acres.)

PREPARED BY JAMES DAVEY AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1026 W. 24TH STREET, SUITE 2, YUMA, ARIZONA 85364 (928) 782-7926 WWW.JDACIVIL.COM	PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349	RIGHT-OF-WAY MAP SECTION 1, T. 11 S., R. 24W., G.S.R.B. & M.	LEGEND ————— NEW RIGHT-OF-WAY - - - - - EXISTING RIGHT-OF-WAY - - - - - CENTERLINE (M) MEASURED (R) RECORD
Date <u>02/27/2020</u> Job No. <u>CSL-08</u> Drawn <u>RC</u> Checked <u>JVD</u>			

**RIGHT-OF-WAY MAP
A PART OF LOT 1, BLOCK 26
SAN LUIS TOWNSITE ADDITION
SECTIONS 12, TOWNSHIP 11
SOUTH, RANGE 25 WEST**



LEGAL DESCRIPTION

Parcel 1

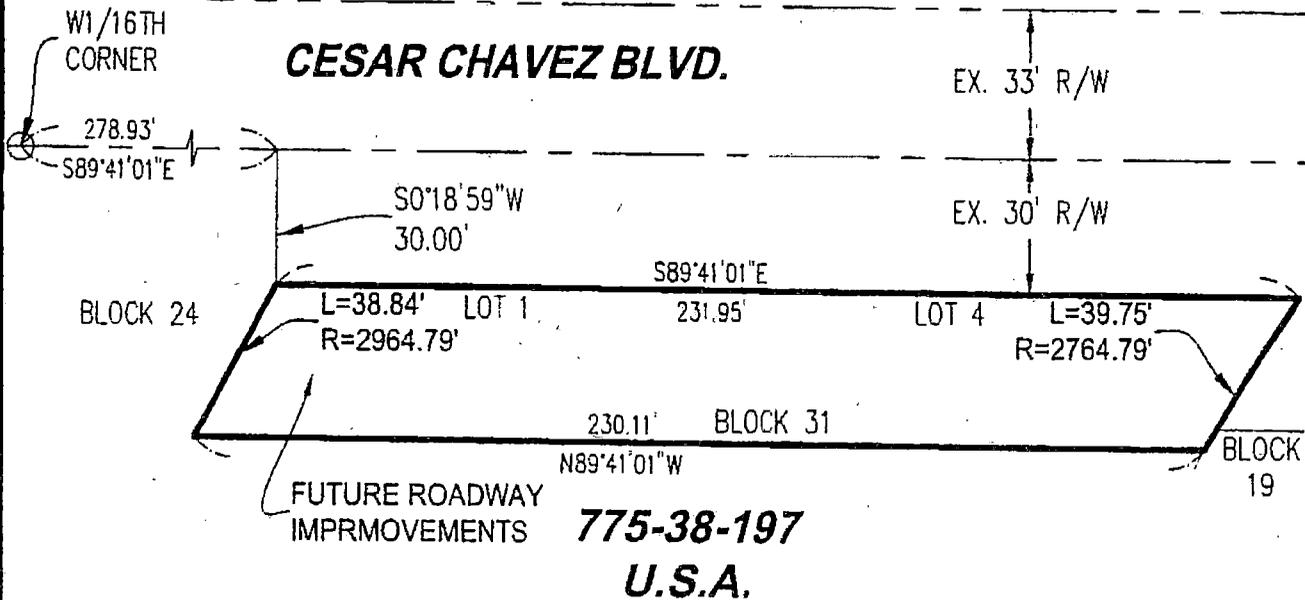
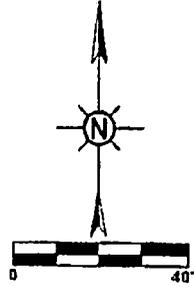
That part of Lot 1 of Block 26 of the San Luis Townsite Addition Beginning at the 1/64th corner on the North line of section 12 at the intersection of Cesar Chavez Blvd. and Mesa Street;
Thence S89°41'01"E a distance of 30.00 feet;
Thence S0°18'59"W a distance of 50.00 feet to the True Point of Beginning;
Thence S89°41'01"E a distance of 160.81 feet;
Thence S55°23'13"E a distance of 8.87 feet;
Thence N89°41'01"W a distance of 160.15 feet;
Thence S45°18'59"W a distance of 11.31 feet;
Thence N0°18'59"E a distance of 13.00 feet to the True Point of Beginning;
Consisting of an area of 855 square feet (.02 Acres.)

LEGEND

- NEW RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- CENTERLINE
- (M) MEASURED
- (R) RECORD

PREPARED BY JAMES DAVEY AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1025 W. 24TH STREET, SUITE 2 YUMA, ARIZONA 85304 (928) 782-7326 WWW.JDACIVIL.COM	PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349	RIGHT-OF-WAY MAP SECTION 12, T. 11 S., R. 24W., G.S.R.B.&M.	Date 02/27/2009 Job No. CS-08 Drawn EC Checked JWD
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**RIGHT-OF-WAY MAP
A PART OF LOTS 1 AND 4, BLOCK
31, SAN LUIS TOWNSITE ADDITION
SECTIONS 12, TOWNSHIP 11
SOUTH, RANGE 25 WEST**



LEGAL DESCRIPTION

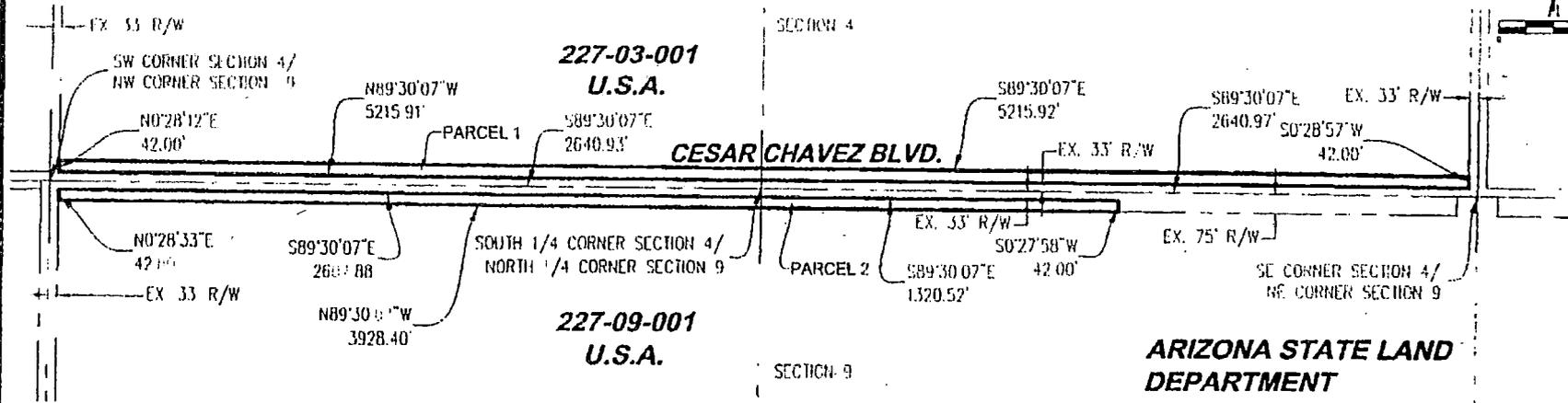
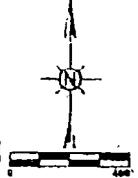
That part of Block 31 of the San Luis Townsite Addition
Beginning at the Northwest corner of block 31:
Thence S89°41'01"E a distance of 231.95 feet;
Thence through a non-tangent curve to the left with a local tangent bearing of
S31°56'23"W and a radius of 2764.79 feet a distance of 39.75 feet,
Thence N89°41'01"W a distance of 230.11 feet;
Thence through a non-tangent curve to the right with a local bearing tangent bearing
of N28°50'18" and a radius of 2764.79 feet a distance of 38.84 feet to the True Point
of Beginning
Consisting of an area of 7855 square feet (18 Acres)

LEGEND

- NEW RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- CENTERLINE
- (M) MEASURED
- (R) RECORD

<p>PREPARED BY JAMES DAVEY AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1025 W. 24TH STREET, SUITE 2, YUMA ARIZONA 85184 (928) 782-7924 WWW.JDACIVIL.COM</p>	<p>PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349</p>	<p align="center">RIGHT-OF-WAY MAP</p> <p align="center">SECTION 12 T 11 S., R. 25W , G S R.B & M</p>	<p>Date <u>02/27/2020</u> Job No <u>CSL-06</u> Drawn <u>RC</u> Checked <u>JVD</u></p>
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RIGHT-OF-WAY MAP
SECTIONS 4 AND 9, TOWNSHIP 11 SOUTH, RANGE 24 WEST



LEGAL DESCRIPTION

Parcel 1
 That part of Section 4, T. 11 S., R. 24 W., G. S. R. B. & M. described as
 Beginning at the Southwest corner of Section 4;
 Thence N0°28'12"E a distance of 33.00 feet to the True Point of Beginning;
 Thence S89°30'07"E a distance of 33.00 feet to the True Point of Beginning;
 Thence N0°28'12"E a distance of 42.00 feet;
 Thence S89°30'07"E a distance of 5215.92 feet;
 Thence S0°28'57"W a distance of 42.00 feet;
 Thence N89°30'07"W a distance of 5215.91 feet to the True Point of Beginning;
 Consisting of an area of 215068 square feet (5.01 Acres)

Parcel 2
 That part of Section 9, T. 11 S., R. 24 W., G. S. R. B. & M. described as
 Beginning at the Northwest corner of Section 9,
 Thence S0°28'33"W a distance of 33.00 feet;
 Thence S89°30'07"E a distance of 33.00 feet to the True Point of Beginning;
 Thence S89°30'07"E a distance of 3928.40 feet;
 Thence S0°27'58"W a distance of 42.00 feet;
 Thence N89°30'07"W a distance of 3928.40 feet;
 Thence N0°28'33"E a distance of 42.00 feet to the True Point of Beginning;
 Consisting of an area of 164992 square feet (3.79 Acres)

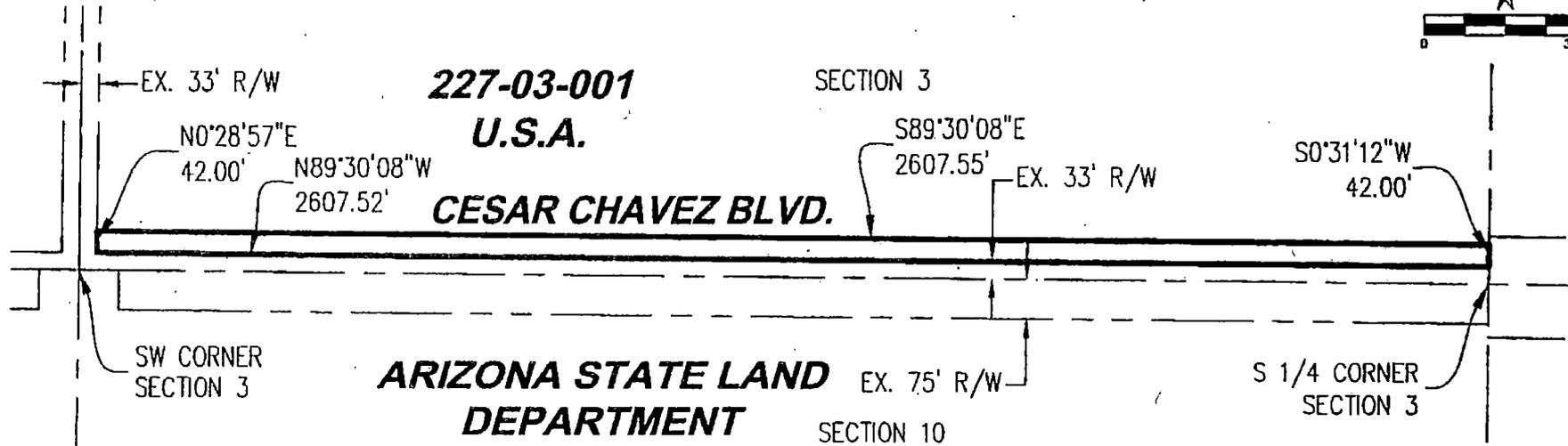
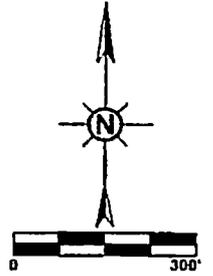
PREPARED BY JAMES DANET AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1425 W. 34TH STREET, SUITE 203 TULSA, ARIZONA 74106 (918) 438-1474 WWW.JDAENET.COM	PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349	RIGHT-OF-WAY MAP SOUTH HALF SECTION 4 AND NORTH HALF SECTION 9, T. 11 S., R. 24 W., G. S. R. B. & M.	Date: 02/27/2020 Job No: E31.09 Drawn: AS Checked: DR
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LEGEND

	NEW RIGHT-OF-WAY
	EXISTING RIGHT-OF-WAY
	CENTERLINE
(M)	MEASURED
(R)	RECORD

RIGHT-OF-WAY MAP

SOUTH WEST QUARTER OF SECTION 3, TOWNSHIP 11 SOUTH, RANGE 24 WEST

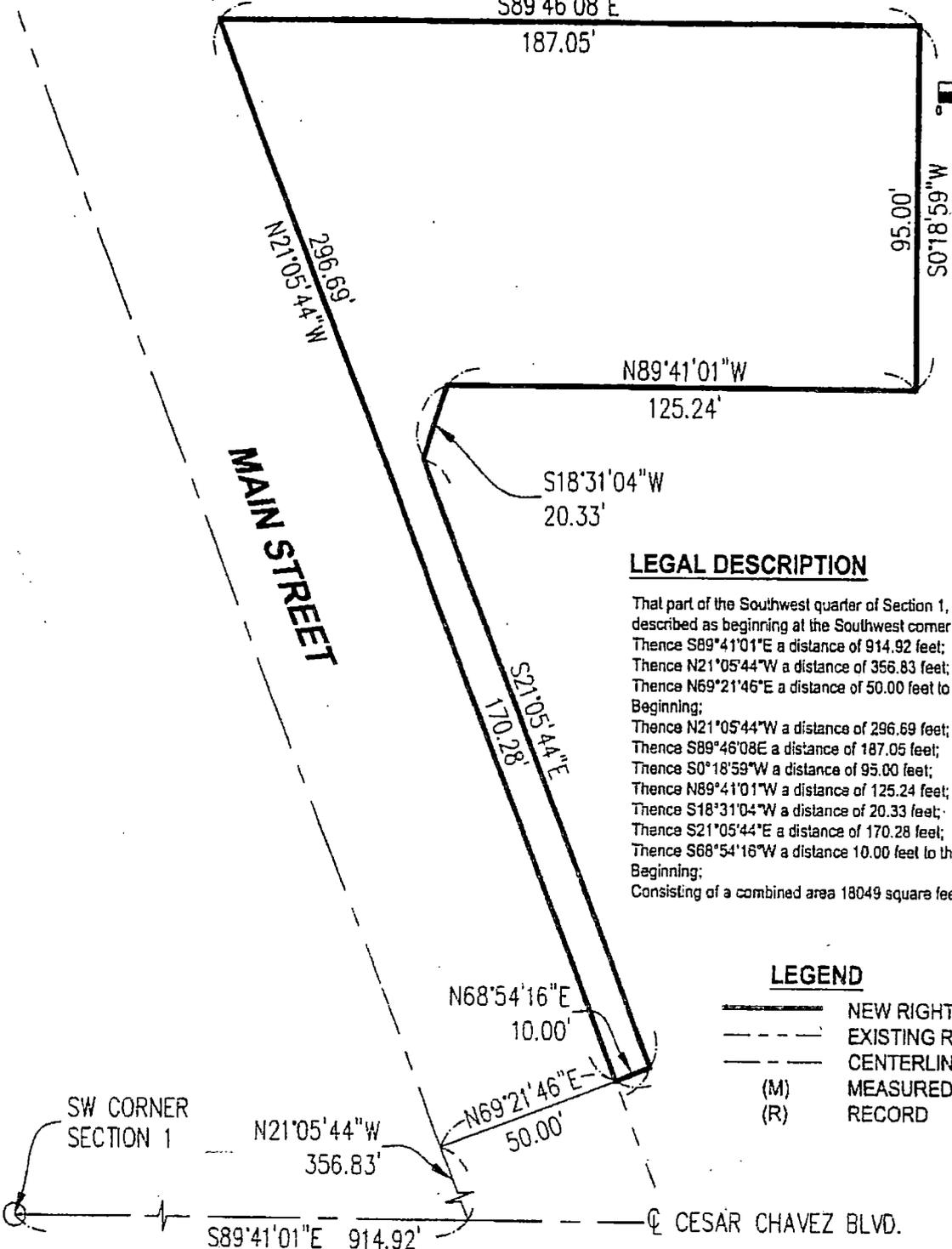
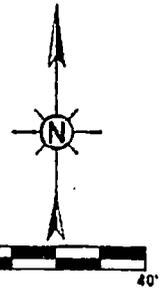


LEGAL DESCRIPTION

That part of Section 3, T. 11 S., R. 24W., G.S.R.B. & M described as:
 Beginning at the Southwest corner of Section 3;
 Thence N0°28'57"E a distance of 33.00 feet;
 Thence S89°30'08"E a distance of 33.00 feet to the True Point of Beginning;
 Thence N0°28'57"E a distance of 42.00 feet;
 Thence S89°30'08"E a distance of 2607.55 feet;
 Thence S0°31'12"W a distance of 42.00 feet;
 Thence N89°30'08"W a distance of 2607.52 feet to the True Point of Beginning;
 Consisting of an area of 109516 square feet (2.51 Acres.)

PREPARED BY JAMES DAVEY AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1024 W. 24TH STREET, SUITE 2, YUMA, ARIZONA 85364 (928) 762-7929 WWW.JDACIVL.COM	PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349	RIGHT-OF-WAY MAP SOUTHWEST QUARTER OF SECTION 3, T. 11 S., R. 24W., G.S.R.B. & M.	LEGEND ——— NEW RIGHT-OF-WAY - - - - - EXISTING RIGHT-OF-WAY - - - - - CENTERLINE (M) MEASURED (R) RECORD
Date <u>02/27/2020</u> Job No. <u>CSL-06</u> Drawn <u>RC</u> Checked <u>JVO</u>			

RIGHT-OF-WAY MAP SECTION 1, TOWNSHIP 11 SOUTH, RANGE 25 WEST



LEGAL DESCRIPTION

That part of the Southwest quarter of Section 1, T. 11 S., R.25W., described as beginning at the Southwest corner of Section 1; Thence S89°41'01"E a distance of 914.92 feet; Thence N21°05'44"W a distance of 356.83 feet; Thence N69°21'46"E a distance of 50.00 feet to the True Point of Beginning; Thence N21°05'44"W a distance of 296.69 feet; Thence S89°46'08"E a distance of 187.05 feet; Thence S0°18'59"W a distance of 95.00 feet; Thence N89°41'01"W a distance of 125.24 feet; Thence S18°31'04"W a distance of 20.33 feet; Thence S21°05'44"E a distance of 170.28 feet; Thence S68°54'16"W a distance 10.00 feet to the True Point of Beginning; Consisting of a combined area 18049 square feet.

LEGEND

- NEW RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- CENTERLINE
- (M) MEASURED
- (R) RECORD

SW CORNER SECTION 1

Q CESAR CHAVEZ BLVD.

<p>PREPARED BY JAMES DAVEY AND ASSOCIATES CONSULTING CIVIL ENGINEERS 1025 W. 24TH STREET SUITE 2 YUMA ARIZONA 85364 (928) 782-7926 WWW.JDACIVIL.COM</p>	<p>PREPARED FOR CITY OF SAN LUIS, ARIZONA 1090 EAST UNION STREET P.O. BOX 1170 SAN LUIS, ARIZONA 85349</p>	<p style="text-align: center;">RIGHT-OF-WAY MAP</p> <p style="text-align: center;">SECTION 1, T. 11 S., R. 25W., G.S.R.B.&M.</p>	<p>Date 8/07/2020 Job No. CSL-06 Drawn RC Checked JVD</p>
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RECLAMATION

Managing Water in the West

Engineering and O&M Guidelines for Crossings

Bureau of Reclamation Water Conveyance Facilities
(Canals, Pipelines, and Similar Facilities)



U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

April 2008

Exhibit C - 47 Pages

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Engineering and O&M Guidelines for Crossings

**Bureau of Reclamation Water Conveyance Facilities
(Canals, Pipelines, and Similar Facilities)**

Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Official
AOE	authorized operating entity
AWWA	American Water Works Association
CFR	Code of Federal Regulations
CPS	cathodic protection system
DOT	Department of Transportation
HDD	horizontal directional drilling
kV	kilovolt(s)
MERL	Materials Engineering and Research Laboratory
O&M	operations and maintenance
Reclamation	Bureau of Reclamation
ROW	right-of-way
WB-67	67-foot wheelbase

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1.0 PURPOSE

These are general guidelines for Bureau of Reclamation (Reclamation) offices to follow when reviewing the engineering and operations and maintenance (O&M) factors in outside entity requests for authorization to cross (encroach upon) Reclamation lands that contain project features such as levees, canals, pipelines, or other water conveyance facilities owned or administered by Reclamation. These guidelines include a general overview of the permitting process administered by Reclamation Lands Groups for allowing a particular use on lands where Reclamation holds a fee or an easement right-of-way interest. These engineering and construction recommendations are minimum guidelines for engineers to use in reviewing and evaluating these portions of the applications.

2.0 GENERAL PERMIT INFORMATION

Applicants requesting to cross any Reclamation land, facility, or water body must obtain a written land use authorization from Reclamation. Requirements for obtaining a use authorization to cross Reclamation project land and water surfaces are in the Code of Federal Regulations (CFR) at 43 CFR 429 and Reclamation Manual LND 08-01. The applicant must complete the *Standard Form (SF) 299*, “**Application for Transportation and Utility Systems and Facilities on Federal Lands**,” or similar forms in use at the local Reclamation office. The form can be obtained by contacting the involved Reclamation office, or it can be accessed electronically at Reclamation’s Web site at: <<http://www.usbr.gov/pmts/lands>>.

Applicants can contact their local Reclamation office to discuss their proposed use before filing an application for a use authorization.

3.0 ENGINEERING AND O&M REVIEW CONSIDERATIONS

3.1 Introduction

Technical review of the crossing evaluates impacts on any existing Reclamation facility and **does not determine the adequacy of the crossing design for the applicant’s intended purpose.**

The use authorization or consent document specifies criteria which, if followed, would not be deemed unreasonable interference. These review guidelines are strictly limited to those criteria which:

Engineering and O&M Guidelines for Crossings

- Protect Reclamation's facility and/or appurtenant facility from damage
- Ensure unrestricted flow and quality of water in Reclamation's facility
- Do not diminish the ability to perform O&M of Reclamation's facility, including access
- Prevent any burden of liability

These guidelines are provided as recommendations that apply to most Reclamation facilities. Each Reclamation office and/or authorized operating entity (AOE) should apply these guidelines using **sound engineering judgment** that best applies to their facilities and existing conditions. Additional Reclamation guidelines for specific locations (e.g., Central Arizona Project Reach 11 Basin Guidelines) may also apply and may be provided to applicants when necessary. These guidelines are minimums, and local conditions may be more stringent depending on the direct impacts to facilities and lands. AOE's may have additional requirements.

Uses that may be deemed reasonable within Reclamation pipeline easements include greenbelts, asphalt roadways, flexible pavement parking lots, transverse curbs and gutters, and sidewalks. Canals and pipelines may have overhead power and telephone lines (but not their supporting poles), transverse fences with gated openings (no walls), and similar surface and overhead structures.

3.2 General

The following individual items should be addressed by the applicant and evaluated by Reclamation and/or AOE as they may affect the Reclamation facility's engineering and O&M aspects. If unusual conditions are proposed for the encroaching structure or unusual field conditions within a Reclamation facility right-of-way (ROW) are encountered, Reclamation reserves the right to impose more stringent criteria than prescribed in these guidelines.

1. Structures that should not be constructed on Reclamation pipeline or canal ROW (whether fee owned or easement) include foundations, buildings, garages, carports, trailers, street light standards, supports for large signs, walls, longitudinal fences (except security/safety fences), power or telephone poles, and similar surface structures.
2. Prior to construction, a joint inspection should be conducted and the condition of existing facilities documented. Reclamation's ROW should be restored to pre-existing conditions following completion of work.

Engineering and O&M Guidelines for Crossings

3. When applications are requesting public use of trails and maintenance roads adjacent to or crossing Reclamation canals, these facilities should be fenced for safety to separate them from open canal water, except when Reclamation's ROW is used as a greenbelt and the applicant accepts legal hazard responsibility. Trails and maintenance roads should be fenced on an as-needed basis whenever such fencing is warranted for public safety, restricted access, security, etc. If a fence is allowed within Reclamation's ROW, Reclamation should approve the fence materials. Any gates allowed within Reclamation's ROW should be at least 16 feet wide. Reclamation will be provided with full access through any fences or gates.
4. Prior to construction of any structure that encroaches within a Reclamation pipeline or canal ROW, a "pothole excavation" should be made to determine the locations of any existing Reclamation and non-Reclamation facilities and their appurtenant features that may be affected. Potholing is the practice of digging test holes to expose underground utilities to determine the horizontal and vertical location of the utility.

All work within 18 inches of the facility should be done using hand-held tools only. The excavation should be made by or in the presence of Reclamation and/or AOE personnel. The presence of a Reclamation and/or AOE inspector may be required throughout the excavation process, but this presence in no way relieves the applicant or their contractor of responsibility.

The resultant elevation information should be delineated on the profile view and labeled as:

POTHOLED ELEVATION XX.X
Surface Elevation XX.X

The pothole excavation should be filled in, or a safety fence installed, prior to departing the site each day.

5. If Reclamation facilities need to be modified to avoid adverse impacts from the applicant's crossing facility, the applicant should be responsible for the cost of such modifications.

Engineering and O&M Guidelines for Crossings

6. A temporary permit may be required for visual inspections, ground and aerial surveys,¹ or potholing that requires physical entrance onto a Reclamation facility. **A use authorization or consent document issued by Reclamation and/or AOE should be obtained prior to entering or crossing Reclamation's ROW for any activity.**
7. Applications should include a project description, calculations, specifications, and detailed construction plans showing plan views, profiles and sections, and grading plans of proposed work within or adjacent to Reclamation's ROW. Plans should show an easily recognizable boundary (tied to a known corner) and Reclamation's ROW and Reclamation stationing or mile post designation.

All Reclamation facilities should be shown and labeled (e.g., "Centerline of xx-inch Reclamation Pipeline," "Reclamation Communication and Control Cable," etc.) The type and weight of the construction equipment crossing Reclamation pipelines, roads, and bridges as well as the crossing locations should be included. Additional information, as identified in following individual specific feature sections of these guidelines, should also be included with the application for review.

Any engineering or land survey drawing should contain the appropriate registered engineer's or land surveyor's stamp and signature. A construction schedule outlining the anticipated duration of the construction should be submitted. A minimum of two² copies of the application (including calculations, specifications, and plans) should be submitted to Reclamation and/or AOE for review and approval.

8. For crossings of all Reclamation facilities, Reclamation and/or AOE personnel familiar with the facilities (including cathodic protection systems) will obtain and provide copies of existing files showing information about existing buried facilities (center of pipeline, depth of cover, size of pipe, class of pipe, etc.) to the applicant.
9. Existing Reclamation facilities (e.g., canal lining, canal check structure, turnout structure, etc.) and appurtenances (e.g., existing blow-offs, air valves, vents, manholes, and/or cathodic protection test stations) and existing non-Reclamation facilities on Reclamation's ROW (e.g., petroleum pipelines, natural gas pipelines, communications lines, powerlines, water lines, sewer lines, storm drain lines, etc.) **should be protected** in place prior to and during construction.

¹ Aerial surveys require placing on-the-ground survey control markers.

² Revise per local Reclamation office and/or AOE practice.

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The applicant and/or their contractor may be liable for all damages to Reclamation facilities and appurtenances as a result of construction and for any other damages or losses suffered by Reclamation or its water contractors, including power, irrigation, municipal and industrial water supply, and communication losses.

10. Trench excavation should comply with the most current Occupational Safety and Health Administration standards or Reclamation Health and Safety Standards, whichever are more stringent. Trench backfill should be placed in 4- to 6-inch lifts if hand compacted or no more than 8-inch lifts if power compacted. Trench backfill within Reclamation's ROW should be compacted to 95 percent relative compaction (ASTM D 698, Standard Proctor) (or 90 percent of ASTM D 1557). Mechanical compaction using heavy equipment (greater than 2,000 pounds) should not be used within 18 inches of the Reclamation pipeline. Flowable fill (or controlled low strength material) should be substituted for compacted pipe embedment under canals and may be used when crossing pipelines.
11. Erosion control measures, including re-vegetation, should be implemented after completing construction.
12. If existing drainage features are to be modified during construction, detailed drawings showing the proposed drainage replacement/restoration should be submitted with the application for review and approval. The applicant is responsible for the care and handling of storm water runoff both during and after construction.
13. The applicant should not divert surface runoff³ toward Reclamation canal or canal embankments. The 100-year storm⁴ surface runoff should use detention basins outside of Reclamation's ROW. Lined drainage channels should be designed to transfer flow from the detention basins to the existing cross drainage facilities that drained the original area. Also refer to "4.4 Storm Water Cross Drainage."
14. Proposed temporary or permanent modifications to the existing cover over Reclamation pipelines should be subject to review and approval by Reclamation and/or AOE. Design parameters for roadway, parking lot, and driveway crossings over the pipe should also be subject to review and approval by Reclamation and/or AOE.

³ Subdivision or commercial development on the uphill side of canals that pave large areas and have large roof areas will greatly increase peak storm runoff—most city development requires retention basins. Applicants should provide the same retention basins that are required for similar development projects.

⁴ Revise per Reclamation field office for specific canal if a higher storm frequency is required.

Engineering and O&M Guidelines for Crossings

15. When a Reclamation pipeline system being crossed has pipe with an “A” cover pipe designation (less than 5 feet of earth), the applicant is to analyze the crossing to show “A” pipe load carrying capability exists to meet their carrying requirements or replace the “A” pipe with pipe of sufficient load carrying capability.
16. Reclamation’s ongoing O&M activities should not be disrupted during construction. The primary or secondary operating road should be kept available for Reclamation and/or AOE use at all times.
17. Detectable warning tape may be required over below-ground utilities. Refer to “3.3 Detectable Warning Tape.”
18. The points where the proposed utilities enter and exit Reclamation’s ROW should be plainly and permanently marked by sign posts extending 5 feet above grade. Applicants should provide sign posts directly above their utilities and at all angle points within Reclamation’s ROW. The distance between adjacent sign posts should not exceed 500 feet. Sign posts should contain the name of owner/operator, contents of the pipeline, utility identification, and emergency contact telephone number. Sign posts for angle points that lie within roads or canals should be offset and have a reference noted. The locations of the sign posts should be shown on the plans.
19. Following completion of work, applicants should provide as-built drawings of their facilities on Reclamation’s ROW. Reclamation as-built drawings are to be updated by the appropriate Reclamation office and/or AOE to reflect the crossing. As-built drawings may be maintained by the AOE, but should remain accessible to Reclamation upon request.

3.3 Detectable Warning Tape

Detectable warning tape may be required over below-ground utilities situated within Reclamation’s ROW and should be a minimum of 18 inches above the utility and between 18 and 30 inches below the ground surface. Warning tapes should conform to the following specifications:

- a. For potable water lines, the warning tape should be a 3-inch-wide blue detectable tape imprinted with “**CAUTION BURIED POTABLE WATER LINE.**”
- b. For nonpotable water lines, the warning tape should be a 3-inch-wide purple detectable tape imprinted with “**CAUTION BURIED NONPOTABLE WATER LINE.**”

- c. For sewer and storm drain lines, the warning tape should be a 3-inch-wide green detectable tape imprinted with “**CAUTION BURIED (type) LINE.**”
- d. For gas, oil, and steam chemical lines, the warning tape should be a 3-inch-wide yellow detectable tape imprinted with “**CAUTION BURIED (type) LINE.**”
- e. For telecommunications, telephone, and television conduit(s), the warning tape should be a 3-inch-wide orange detectable tape imprinted with “**CAUTION BURIED (type) CONDUIT.**”
- f. For electrical, street lighting, and traffic signal conduit(s), the warning tape should be a 3-inch-wide red detectable tape imprinted with “**CAUTION BURIED (type) CONDUIT.**”

4.0 SPECIFIC FEATURE REVIEW GUIDELINES

4.1 Bridges

- 1. New bridge crossings (vehicular, pedestrian, and utility) should be perpendicular (between 70 and 90 degrees) to the centerline of the water conveyance facility and at locations approved by Reclamation and/or the AOE. Exceptions to the policy may be considered on an individual basis.
- 2. Public use bridges in urban areas should be spaced no closer together than 1/3 mile (about 4 blocks or 1,700 feet) apart. This is to ensure O&M operations are not overly restricted.
- 3. Bridge crossings should be of free span design. Consideration of any anticipated (known or ongoing) canal subsidence issues, anticipated raising of the canal lining, or anticipated increases in the canal's high water level should be made. The minimum vertical clearance between the bottom of the superstructure and the top of the canal lining should be 3 feet. For unlined canals, the vertical clearance may be measured to the high water level. If this minimum clearance is reduced by subsidence or by future Reclamation modifications to the canal lining, the minimum clearance should be re-established at the applicant's expense. The minimum horizontal clearance from the face of the abutment to the top of the canal lining should be 5 feet. For unlined canals, the horizontal clearance may be measured to the high water level.

Engineering and O&M Guidelines for Crossings

These clearances are suggested to minimize impact on the canal section during construction and future inspections and O&M. Applicants may request to re-construct a canal section if Reclamation's operations are impacted by close construction during periods when the canal is normally unwatered. If so, vertical clearances may be reduced to 1 foot and horizontal clearance to 3 feet.

4. Canal O&M roads should intersect public roads at bridges at right angles for proper visibility. This may require the applicant to acquire additional ROW for use if the existing canal ROW is not sufficient. American Association of State Highway and Transportation Official (AASHTO) criteria for sight distances at the intersection of O&M roads and roadways at new bridges should be met to allow O&M vehicles to cross them safely.
5. Driving piles at concrete-lined canals should not be permitted. Any abutment foundation support piles, at concrete-lined canals, should be drilled and cast-in-place.

At a minimum, the applicant's drilling and piling plan should include:

- Drilling methods and equipment
- Methods for preserving existing foundation material
- Methods and equipment to determine the presence of quick soil conditions or scouring and caving
- The proposed method for casing installation and removal if casings are used
- Methods and equipment for accurately determining the depth of concrete and actual or theoretical volume placed

At a minimum, the applicant's contingency plan should include:

- Means to repair in a certain time
- Minimum flows after event
- Review of geotechnical conditions surrounding the pile locations
- Assessment of how the proposed mitigations will address geotechnical conditions
- Methods for restoring foundation material

Engineering and O&M Guidelines for Crossings

- A list of material, equipment, and personnel with qualifications to be used during mitigation work
 - A seal from a Professional Engineer on all relevant plans and drawings
6. The submitted plan drawings for the bridge should contain the following information:
 - a. Superstructure, abutments, railings, embankments, and drainage, including details and sections
 - b. Type of materials (concrete, steel, timber, etc.) used for different members
 - c. Details of cast-in-place foundation piles, if any, on both sides of the canal
 - d. The elevation of the bottom of the superstructure and the clearance between the top of the canal lining (or high water level if unlined canal) to the superstructure or bottom of deck slab, whichever is lowest
 - e. Design loadings
 - f. Design standards on which the bridge is based (AASHTO, etc.)
 7. The calculations and specifications for the bridge should be submitted to Reclamation and/or AOE for review.
 8. The right lane turn radius from the new road onto a Reclamation operating road should comply with the provisions of a 67-foot wheelbase⁵ (WB-67) truck turning template in the AASHTO manual on Geometric Design of Highway and Streets.
 9. Details of any proposed utilities to be attached to an existing bridge include:
 - a. Anchor bolt locations should not intercept the critical reinforcing steel of the bridge.

⁵ The field office should adjust these provisions according to anticipated needs.

Engineering and O&M Guidelines for Crossings

- b. Utilities should be placed and anchored under bridge decks and through utility openings, if they are present. The utility should be placed off center in the utility opening, if possible, to allow for future utility additions.
 - c. If an expansion joint is used in the pipeline, the joint should be placed near the bridge deck expansion joint.
 - d. Holes through bridge concrete or abutment and retaining walls for passage of utilities should be allowed by core drilling. The annular space between the utility and core hole surface should be completely filled with an elastomeric sealant to prevent loss of material or water piping from behind the wingwalls and abutments.
 - e. Submit calculations showing the effects of the weights of the proposed utilities on the load carrying capacity of the bridge for Reclamation review.
 - f. Intermediate supports for the utility should withstand the same seismic load considerations as the bridge.
 - g. Load limit signs should be placed adjacent to the bridge, as required under AASHTO criteria.
 - h. Beam guardrails should be installed at bridges and bridge approaches, as required under AASHTO criteria.
10. The applicant will be responsible for changes to Reclamation existing ROW; bridge O&M approach roads; existing fencing, gates, and signs; and the addition of new fencing, O&M gates, cattle guards, signs, etc.

4.2 Landscaping

1. No landscaping or other changes in ground surfaces within Reclamation pipeline and canal/lateral ROW should be made without advance written permission of Reclamation through the application process. Landscaping changes may (1) limit, prevent, or hamper O&M access; (2) increase the costs of operations and maintenance of the facility; (3) impact facility reliability; or (4) create a public nuisance or liability issue.
2. Open space with natural hiking trails and walkways may be permitted if vehicle access to Reclamation pipeline and appurtenant facilities for patrol and maintenance is provided.

3. The following may apply within Reclamation's ROW:
 - a. The easement may be used as a greenbelt upon Reclamation approval.
 - b. Ground cover and shrubs are permitted upon Reclamation approval.
 - c. Trees and vines should not be allowed. See Appendix B of *Review of Operation and Maintenance Program Field Examination Guidelines* (reproduced as appendix B at the end of these guidelines).
4. All temporary or permanent changes in ground surfaces within Reclamation pipeline and canal ROW are considered encroaching structures and are handled as such. Earthfills and cuts on adjacent property should not encroach onto Reclamation pipeline and canal ROW. Excavations of adjacent property (even property not within Reclamation's purview) within the projection of the Reclamation embankment line may impact embankment stability and should be evaluated.
5. Permanent landscaping structures should not be allowed within the exterior limits of a Reclamation linear facility ROW (fee owned or easement).
6. Pressurized lawn and park sprinkler irrigation lines (3-inch maximum size) and isolation valves within Reclamation easements that run parallel to a Reclamation pipeline should be installed at least 15 feet from the edge of the Reclamation pipeline.

Irrigating lawns and flower beds along canal embankments should not overwater the area or threaten the embankment stability.

4.3 Roadway Crossing

Note: This type of encroachment also includes parking areas and recreational trails.

1. The applicant should submit a grading plan as part of the application.
2. If the roadway crosses a Reclamation pipeline system that has a cover pipe designation of "A," refer to "3.2 General."

Engineering and O&M Guidelines for Crossings

3. If the applicant intends to modify existing drainage features during construction, detailed drawings showing the proposed drainage replacement/restoration should be submitted with the application for review and approval. (Refer to “3.2 General.”)
4. If the proposed roadway includes a bridge crossing over a Reclamation canal or pipeline, Reclamation and/or AOE should review and approve the vertical clearance and location of the abutments. (Refer to “4.1 Bridges.”)
5. Streets, roads, or parking areas crossing Reclamation pipeline easements are permissible. All streets, roads, and parking surfaces are to be asphalt or other flexible pavement. Depressed curbs or driveways should be provided for Reclamation vehicular access when new roads cross Reclamation pipelines or canals.
6. Roadway ditch drainage should not be allowed to flow into the canal. Drainage should be retained and released in a controlled way to maintain peak discharges that are less than any peak historical runoff rate before these modifications. Applicants should direct drainage to an original sub-basin cross drainage culvert or overchute. (Refer to “3.2 General” and “4.4 Storm Water Cross Drainage.”)
7. If existing roadway embankments are to be widened, the work should be conducted in accordance with the provisions of construction in the applicable State Department of Transportation (DOT) Standard Specifications.

4.4 Storm Water Cross Drainage

1. Upslope development impacts historic natural drainage volumes and peak flow rates. Development re-grades and revises drainage sub-basins. Revised ground cover from constructing roads, parking areas, and buildings may result in the need to change the cross drainage features (culverts and/or overchutes) along Reclamation canals.
2. A hydrologic study should accompany all plans that modify the existing drainage across and/or along Reclamation facilities. The study or report should show the proposed flows of the canal and the associated crossings. The drainage study or report should show that the downstream system can accept the flows without creating any flooding to properties adjacent to or downstream of the canal.
3. All drainage crossings, whether existing or proposed, should carry the peak runoff of a 100-year event while preventing any storm water from entering the canal and/or ponding against the canal embankment.

Engineering and O&M Guidelines for Crossings

4. Urban runoff should not be allowed to enter into, or drain onto, Reclamation's land. All flows generated outside Reclamation's ROW should enter the storm drain system prior to entering Reclamation's ROW. Piped connections are preferred, but concrete-lined channels may be acceptable upon Reclamation's review.
5. The new crossing under a canal should be designed with 3 feet vertical clearance from the top of the cross drainage structure to the bottom of the canal (or liner). The structure should extend completely across Reclamation's ROW.
6. New overcrossings of the canal should have 2 feet of vertical clearance from the top of the liner and 2 feet of horizontal clearance from the support abutments to the outside edge of the canal lining. The O&M road crossing of the cross drainage structure should be structurally capable of withstanding highway-legal vehicle loadings and provide at least 1 foot of cover in the roadway.
7. Pipe crossing barriers should be installed on all pipe overcrossings.
8. All drainage flow should be discharged to a downstream storm drainage system owned, operated, and maintained by a public agency (such as a city or county) or into areas such as channels, roadways, parks, wetland basins, or other non-private lands that can accept the concentrated flows from the drainage crossing.
9. All drainage from upland property should be collected by the applicant's installed system of curbs and inlets within their property and discharged into a non-Reclamation public agency's drainage system.
10. New drainage system designs will not use ponding against the existing canal embankment for temporary detention of storm runoff that will not immediately pass through existing or new crossings.

Proposed permanent detention facilities adjacent to Reclamation's property should include engineered fill beyond the canal ROW to provide, at a minimum, a fill-width maintenance access roadway between the canal property and the basin. The applicant shall submit a geotechnical report verifying that the canal embankments can perform as detention basin embankments. The design should provide for sufficient freeboard to contain the 100-year event within the proposed basin adjacent to Reclamation's property and shall have adequate protection from seepage and erosion.

The ownership and related O&M of the embankments shall be the responsibility of the applicant requesting the crossing.

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11. When grading operations upstream of existing canal drainage crossings are scheduled to take longer than a normal construction season to complete, temporary basins shall be installed. These temporary basins should be designed to detain the 100-year event, capture silt from the disturbed area, and meter the flows across the existing drain crossings without spilling flows into the canal.
12. Unless Reclamation specifies otherwise, the applicant should remove or plug and abandon existing drainage crossings that are not used by the development unless they are shown to provide an additional measure of safety for the canal by reducing the likelihood of spill into the canal caused by extreme runoff flows. Otherwise, these crossings should remain in place for Reclamation's benefit and will not require ownership transfer to a public agency.

These crossings must discharge into the non-Reclamation public agency's storm drainage systems or into areas such as channels, roadways, parks, wetland basins, or other nonprivate lands that can accept the concentrated flows from the drainage crossing in the case of an extreme runoff event.

Grading in Reclamation property should be preserved or revised to direct extreme runoff flows into these unused drainage crossings without allowing said flows to enter into the canal until the crossings reach their capacity.

4.5 Subdivision

Urban developments are reaching Reclamation's lands and ROWs. These are general guidelines for accommodating development in subdivisions (refer to "3.2 General" and "4.4 Storm Water Cross Drainage").

1. Permanent structures should not be permitted within Reclamation fee-owned linear ROWs.
2. Open space with natural hiking trails and vegetation may be allowable.
3. Where subdivision development is adjacent to a canal, fencing should include these characteristics:
 - a. Temporary chain link fences must be installed prior to removing any portion of existing fences.

Engineering and O&M Guidelines for Crossings

- b. Upon completion of grading for drainage and other work, fencing should be installed along the subdivision's boundary length of the adjacent ROW plus 150 feet beyond the development's property boundary. The fence should be per project standards and at the applicant's expense.
 - c. The new fence should be located 1 foot outside of Reclamation's ROW. The fence location should be shown on the improvement plans.
4. Use of Reclamation pipeline easements as part of residential subdivision lots should not be allowed. Pipeline easements may be included within the subdivision greenbelt or similar use areas.
5. Drawings should include all proposed improvements (i.e., streets, utilities, landscaping, etc.) within, and adjacent to, Reclamation's ROW.
6. Trees or vines should not be allowed within a Reclamation pipeline or canal ROW. See Appendix B of *Review and Operation and Maintenance Program Field Examination Guidelines* (reproduced as appendix B at the end of these guidelines).
7. Streets, roads, or parking areas using Reclamation easements may be permissible. All streets, roads, and parking surfaces should be asphalt or other flexible pavement. Depressed curbs or driveways should be provided for Reclamation vehicular access when new roads cross Reclamation pipelines or canals.
8. Where fencing is proposed within Reclamation easements, a minimum 16-foot-wide gate should be provided for Reclamation access.
9. Pipelines containing sewage, oil, gasoline, natural gas, or hazardous materials should only cross perpendicular (between 70 and 90 degrees) to the Reclamation pipeline or canal and be installed with the necessary safety measures and separation clearance as required in "4.6 Utility Crossing."
10. Electroliers, posts, etc., should be installed at the maximum distance possible from the edge of the pipeline or canal.
11. If crossing a Reclamation pipeline system that has "A" cover pipe designation, refer to recommendations in "3.2 General."

4.6 Utility Crossing

Note: All pipelines, electrical, and communication lines and conduits are referred to as “utilities” in these guidelines.

4.6.1 Casings

The Reclamation Materials Engineering and Research Laboratory’s (MERL) position is to avoid using casing pipes around metallic carrier pipelines (steel, ductile iron, cast iron, reinforced concrete, pretensioned concrete cylinder, etc.) whenever possible. The experience of the corrosion community in general is that these casings often cause corrosion-control problems. Furthermore, dielectric (plastic, fiberglass, etc.) casings, or even dielectrically coated casings, should not be used. They can shield the carrier pipe from receiving cathodic protection current.

Cathodic protection to a buried metallic pipeline is more trouble free and more certain without a casing pipe. MERL recommends relying on effective corrosion control measures on the carrier pipeline rather than relying on a casing pipe (which may shield cathodic protection current) to direct a leak away from Reclamation property.

4.6.2 Overhead Line Crossing

1. Overhead wires across Reclamation pipeline and canal ROWs should be at least 32 feet above all ground levels in the Reclamation ROW. For electrical powerlines of 69 kilovolts (kV) or higher voltage, the minimum clearance should be 40 feet plus 0.25 inch per kV of line-to-line voltage above 450 kV. In any case, the minimum clearance is to be that determined to be needed with an ambient temperature of 120 degrees Fahrenheit.
2. Reclamation has the following requirements for overhead crossings:
 - a. Poles or towers should not be allowed within Reclamation’s ROW.
 - b. Overhead electrical and communication lines should cross perpendicular (between 70 and 90 degrees) to the centerline of the Reclamation facility.
 - c. If necessary, fence grounding is to be provided for existing fence lines, especially under power transmission lines.

3. A marker warning sign should be provided that shows the clearance and electrical line voltage. The warning sign should face oncoming traffic and state, "**DANGER, HIGH VOLTAGE OVERHEAD.**"

4.6.3 Utility Crossing Reclamation's Canal

Utility crossings include open ditch laterals, subsurface and surface drains, levees, and similar facilities.

General Requirements:

1. Utilities crossing Reclamation canals should be designed to cross perpendicular (between 70 and 90 degrees).
2. Pier construction in the canal for new utility crossing(s) should not be allowed. New utility crossings should be free span design.
3. Open cut crossings of Reclamation canals and ditches, when allowed, should require replacing linings to re-establish the original construction style and materials (i.e., disturbed concrete lining panels should be removed in their entirety and replaced, membrane lining and earth or concrete protective cover should be re-constructed, gravel and canal under-drainage systems should be re-established to full working order, etc.) Proposals should be submitted for approval with the crossing permit application.
4. For trench excavation and backfill requirements, refer to "3.2 General."
5. Boring and jacking of a utility through canal embankments or protective levees should not be permitted. Boring and jacking of a utility should be constructed through the embankment foundation materials. Applicants should make special design and construction considerations with bored crossings under canals containing water during construction. Among these should be using proper bentonite slurry to seal the annulus space between the utility conduit and the boring cavity from canal seepage. Refer to appendix A for more details to be considered.

The applicant's drilling plan should cover:

- a. Drilling methods and equipment
- b. Methods for preserving existing foundation material
- c. Methods and equipment to determine the presence of quick soil conditions or scouring and caving

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- d. Proposed method for casing installation and removal if casings are used
- e. Methods and equipment for accurately determining the depth of concrete and actual or theoretical volume placed

The applicant's contingency plan should cover:

- a. Means to repair in a certain time
 - b. Minimum flows after event
 - c. Review of geotechnical conditions surrounding the pile locations
 - d. Assessment of how the proposed mitigations will address geotechnical conditions
 - e. Methods for restoring foundation material
 - f. List of material, equipment, and personnel with qualifications to be used during mitigation work
 - g. A seal from a Professional Engineer on all relevant plans and drawings
6. When horizontal directional drilling (HDD) or other trenchless methods are used, canal seepage conditions may be aggravated by the collapse of the canal foundation material into the annular void between the bore and pipe. Penetration through the top stratum of fine-grained materials may concentrate seepage at those locations. Pipe installed with trenchless methods should proceed only after completion of a comprehensive evaluation of the following:
- (a) Comprehensive understanding of the subsurface soil and groundwater conditions to a minimum depth of 20 feet below the lowest pipe elevation
 - (b) Locations of the HDD pipe penetration entry and exit
 - (c) Construction procedure
 - (d) Allowable uplift pressures
 - (e) Onsite quality control and quality assurance monitoring during construction operation

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- (f) Grouting of the pipe annulus
- (g) Backfilling of any excavated areas
- (h) Repair and reinstatement of the construction staging areas

A geotechnical report should be submitted with the application for review prior to approval of the proposed utility crossing.

Directional drilling under a canal may be considered if a minimum clearance of 25 feet to the bottom of the canal lining is maintained for utilities with less than a 24-inch outside diameter. Larger utility crossings should be considered on an individual basis and may require additional clearance from the bottom of the canal lining.

7. Cut and cover constructed utilities under Reclamation canals should have a minimum cover of 36 inches when within Reclamation's ROWs. Bored construction utilities should have a minimum of 3 diameters cover.
8. Reclamation's ongoing O&M activities should not be disrupted during crossing construction. The primary or secondary operating road should be kept available for Reclamation use at all times.
9. Canal embankments should be re-built or repaired with materials and standards equal to or better than the existing embankments.
10. Drawings should be stamped and signed by a Professional Engineer and contain the following information:
 - a. Canal milepost or station at each proposed crossing, utility size and location, and type of utility or material transported
 - b. Maximum utility operating pressure, type of pipe, joints, wall thickness, maximum test pressure, and description of test procedures
 - c. Type of sleeve/casing (when allowed) including diameter, joints, and wall thickness
 - d. For utilities attached to a bridge or an overchute, details showing the structure name, superstructure, abutments, embankments, protective dikes, method of attachment, spacing of utility supports on the structure, location of other attached utilities, and structural calculations

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- e. Protective coatings and corrosion control measures
- f. Method of handling pipeline expansion and contraction
- g. Location of nearest shutoff valve on each side of the crossing
- h. Location and details of thrust restraint
- i. Design code(s) used for the utility crossing
- j. Location, including depth, of the buried pipeline communication and control cables
- k. Other existing utility easements in the immediate vicinity

Hazardous Material Carrier Requirements:

1. Pipelines carrying hazardous material or pollutants (e.g., oils, gasoline, sewage, contaminated waters, and nonpotable waters) should be designed for a reduced risk of failure in the portion within Reclamation's ROW. The design should require either:
 - a. Designing the crossing pipeline with an additional 50 percent working pressure factor
 - or*
 - b. Using secondary containment (casing pipe) for all hazardous material pipelines
2. To minimize the amount of any hazardous material entering the canal, Reclamation may require the installation of a block (gate) valve and or a check valve on each side of the canal between the ROW boundary and the embankment. When selecting the type of the valves, take into the account the flow direction and the terrain.
3. A final hazardous material spill contingency plan and an emergency response plan should be approved by Reclamation prior to start of construction.
4. A monitoring program and/or Supervisory Control and Data Acquisition System alarm may be required depending on the hazardous material transported. This applies to all "overcrossings" and "undercrossings" when the hydraulic grade line is within 60 inches of the canal liner or when local geology would promote this requirement.

Attaching Utilities to Bridges and Overchutes:

Note: Reclamation does not guarantee the long-term availability of bridges or overchutes as support devices for utility crossings because they may require structural modifications or alterations to accommodate widening, repairs, subsidence offsets, etc., to such an extent that service may be interrupted or stopped. Reclamation may determine the bridge is no longer required and may remove it. In that event, the owner/operator of each utility attached to a bridge or an overchute may be required to re-locate or permanently remove their utility at their own expense.

Specific details for attaching utilities to bridges are:

- a. Utilities should not be placed on the bridge deck.
- b. Anchor bolt locations should not intercept the critical reinforcing steel of the bridge.
- c. Utilities should be placed and anchored under bridge decks between girders and through utility openings, if they are present. The utility should be placed off center in the utility opening, if possible, to allow for future utility additions.
- d. If an expansion joint is used in the pipeline, it should be placed near the bridge deck expansion joint.
- e. Holes through bridge concrete or abutment and retaining walls for passage of utilities may be allowed and should be core drilled. The annular space between the utility and core hole surface should be completely filled with an elastomeric sealant to prevent loss of material or water piping from behind the wingwalls and abutments.
- f. Calculations showing the effects of the weights of the proposed utilities on the load carrying capacity of the bridge should be submitted for Reclamation review.
- g. Intermediate supports for the utility should withstand the seismic conditions of the bridge.

4.6.4 Utility Crossing Reclamation's Underground Pipelines

1. The applicant should submit the procedures, excavation plans, schedules, as well as type and weight of the construction equipment to be used for crossing the Reclamation pipeline.

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2. High voltage, direct current powerlines should not be permitted to encroach on the Reclamation pipeline ROW, except in unusual circumstances and with proper cathodic protection considerations.
3. For proposed metallic pipelines, refer to "5.0 Cathodic Protection Requirements."
4. For utilities crossing above or under the Reclamation pipeline, the vertical clearance between the utility and Reclamation pipeline should be a minimum of 12 inches.
5. The location of the Reclamation pipeline and the communication and control cables throughout the area of the proposed construction should be shown on the plans. Prior to Reclamation and/or AOE issuing a use authorization or consent document, the pipeline and the cable(s) should be located and exposed by potholing. The pothole locations should be shown on the drawings. The pothole elevations should be referenced to Reclamation stationing or milepost. (Refer to "3.2 General.")
6. Drawings should contain the following information:
 - a. Reclamation milepost or station at each proposed crossing, pipeline size and location, and type of utility or material transported.
 - b. Maximum utility operating pressure, type of pipe and joints, maximum test pressure and description of test procedures, wall thickness, and utility pipe classification.
 - c. Type of sleeve/casing pipe (when allowed) including diameter, joints, and wall thickness.
 - d. Protective coatings and corrosion control measures.
 - e. Location of nearest shutoff valve on each side of the crossing.
 - f. Location and details of thrust restraint.
 - g. Design code(s) used for utility crossing.
 - h. Location, including depth of the Reclamation pipeline and the communication and control cables.
 - i. Other existing utility easements in the immediate vicinity.

7. Detectable warning tape may be required over trenched utilities. (Refer to “3.3 Detectable Warning Tape.”)
8. For trench excavation and backfill requirements, refer to “3.2 General.”
9. Embankments should not be permitted within Reclamation’s ROW where underground pipeline exists.

4.6.5 Utility Crossing Under Reclamation’s Roadways

1. The applicant should supply typical cross sections that show existing ground surface elevations, utility trench invert elevations, and utility details.
2. For trench excavation and backfill requirements, refer to “3.2 General.”
3. Conduits with diameters up to 24 inches should be bored and jacked underneath pavements. Larger conduits may be considered on an individual basis. Pavement or road surfaces should not be cut unless an acceptable detour, if required, is approved. The cover over the conduit(s) when within Reclamation’s ROWs should be a minimum of 36 inches. (Refer to “3.2 General.”)
4. Unless otherwise approved, the applicant should replace existing Reclamation roads and parking surfaces that are removed or damaged by the applicant’s construction activities in accordance with provisions in the latest edition of the applicable State DOT Standard Specifications.
5. If existing road embankments are to be widened, the work should be conducted in accordance with the provisions of embankment construction in the applicable State DOT Standard Specifications.
6. Detectable warning tape may be required over buried utilities. (Refer to “3.3 Detectable Warning Tape.”)

5.0 CATHODIC PROTECTION REQUIREMENTS

5.1 Cathodically Protected Metallic Pipelines

Unless approved in writing by Reclamation, metallic pipelines or those containing metallic reinforcement (e.g., reinforced concrete) installed within Reclamation’s ROW should have a suitable bonded dielectric coating (see “5.2 Protective Coatings for Corrosion Control”) and be cathodically protected. Impressed current cathodic protection rectifiers and deep-well anode systems should not be

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permitted within Reclamation facilities without prior approval from MERL's Corrosion Technology Group. All submittals should include details of the cathodic protection system (CPS) and its appurtenances.

1. All existing Reclamation cathodic protection test stations, cables running to these stations, rectifiers, anode beds, and any other appurtenances should be located prior to any grading or excavation. The test stations should be staked and flagged. The test stations, cables running to these stations, any anode beds, etc., should be suitably enclosed or protected during construction to prevent damage. No re-location or modification of the test stations, cables, anode beds, etc., is allowed without prior approval from MERL's Corrosion Technology Group.
2. Generally, the CPS to the proposed pipeline should be the sacrificial anode type unless the proposed installation continues an existing pipeline that uses impressed current type of cathodic protection.
3. A means of monitoring the effectiveness of the CPS on the proposed pipeline should be provided within Reclamation's ROWs. The number of anodes and test stations will differ with each project. Test stations should be located at every anode bed connection and should not be more than 1,000 feet apart. A test station should also be located where any metallic pipeline crosses over or under a metallic Reclamation pipeline, metallic fence, other metallic structure embedded in the ground, or comes within 20 feet of a Reclamation structure on or embedded in the ground. Both the proposed cathodically protected pipeline and the Reclamation pipeline should be monitored regularly using these test stations. Monitoring results should be reported to MERL's Corrosion Technology Group. In addition, the owner of the proposed crossing pipeline should investigate and mitigate any adverse potential shift caused by the proposed pipeline on the Reclamation pipeline. Owners of proposed crossing pipelines should return Reclamation pipelines to their original electrochemical potentials or to more benign potentials. Mitigation measures should be approved by MERL's Corrosion Technology Group. The effectiveness of mitigation measures should be confirmed in the presence of a Reclamation representative following installation.

For those pipelines under DOT regulation, the application and monitoring of the CPS should conform to Title 49 CFR, Part 195, any special provisions of this guideline, and the provisions of NACE International RP 0169, in that order. For other pipelines, any special provisions of this guideline should take precedence, followed by the provisions of NACE RP 0169.

5.2 Protective Coatings for Corrosion Control

1. *Atmospheric Exposed Pipe*

The coating should be a high build modified aluminum epoxy mastic primer and top coated with a high build aliphatic urethane. The type of coating should be listed in the submitted plans and specifications. Information should include the surface preparation and the thickness of the coating to be applied.

2. *Buried Pipe*

The type of coating may vary from project to project due to geology and soil corrosivity and should be considered on an individual basis. The type of coating should be listed in the submitted plans and specifications. Information should include the surface preparation and the thickness of the coating to be applied.

REFERENCES

- Application for Transportation and Utility Systems and Facilities on Federal Lands, <http://www.ntia.doc.gov/FROWsite/SF-299_2006.pdf>.
- Application for Use of Reclamation Project Land and Water Surfaces, <<http://www.usbr.gov/pmts/lands/>>.
- Bureau of Reclamation Right-of-Use Application, <<http://www.usbr.gov/pmts/lands/FINAL7-2540-5-06ExpDate03312009.pdf>>.
- California Department of Water Resources - Encroachment Permit Guidelines.
- Central Arizona Project, Reach 11 Guidelines.
- GP Region Billings MT – Standard Crossing & Clearance Requirements, Utility Lines and Cables, drawing 40-600-51. The office also uses a Preliminary Project Description Form and a Special Use Permit.
- NACE, International RP 0169, “Standard Recommended Practice – Control of External Corrosion on Underground or Submerged Metallic Piping Systems.”
- PN Region Burley ID – Overhead and underground crossing clearances.
- Policy on Geometric Design of Highway and Streets, American Association of State Highway and Transportation Officials (AASHTO), Fifth Edition, 2004.
- Reclamation, 2005. Preliminary drawing 103-D-1700 that provides general requirements for installation of crossings, June 2005.
- Reclamation Manual, Directive and Standards LND 08-01, Land Use Authorizations, <<http://www.usbr.gov/recman/lnd/lnd08-01.pdf>>.
- Title 29 CFR, Part 195.
- U.S. Army Corps of Engineers – Engineering and Design, Design and Construction of Levees EM 1110-2-1913, 30 Apr 2000, CECW-EG Washington, DC 20314-1000.

GLOSSARY

Bored and jacked – This terminology is a general way of referring to a family of trenchless methods.

Bridge, class A – Vehicular bridge used by the public. May or may not be owned by the Bureau of Reclamation.

Consent Document Permit – Permit required across fee-owned lands.

Detention basin – An artificial flow control structure used to contain flood water for a limited period of a time, thereby providing protection for areas downstream. Detention basins provide a way to reduce storm peak flows, while retention basins hold water for an extended period of time. These basins are generally a part of a larger engineered flood water management system.

Electroliers – A branching frame, often of ornamental design, used to support electric illuminating lamps.

Pothole excavation – See potholing.

Potholing – The practice of digging test holes to expose underground utilities (e.g., cables) to determine the horizontal and vertical location of these utilities.

Trenchless methods – Procedures for installing pipe without using traditional trench cut and cover methods. These trenchless methods may be referred to as bore and jack, tunneling, horizontal directional drilling, and microtunneling, among others.

Water conveyance facility – Canal, ditch, pipeline, drain, levee, open or closed laterals, and similar facilities and their associated appurtenant features.

Appendix A

General Requirements for Installing Bored and Jacked Pipe Undercrossings

Bored and Jacked Under the Canal – This terminology is a general way of referring to a family of trenchless technologies. Similar guidance to the requirements listed below should be followed no matter what method is used for installation.

1. Installing a lone carrier pipe (without casing) is encouraged. Refer to “4.6 Utility Crossing,” and “4.6.1 Casings” for information on cautions of using casings around metallic carrier pipe.
2. Plans must show carrier/casing pipe type, diameter, and thickness. Casing pipes should be steel pipe (American Water Works Association [AWWA] C-200) and have 1/4-inch minimum wall thickness. Applicants should provide the type of carrier pipe and appropriate bell dimensions for said carrier pipe to verify annular clearances.
3. When installing pipe while the canal is unwatered, a minimum of 3 pipe diameters or 60 inches of clearance (whichever is greater) between the top of the pipe and the bottom of the canal must be maintained. However, 72 inches or more clearance is recommended.
4. Provide a minimum of 3 inches of clearance between the carrier and casing pipes at all points (including bells).
5. A bulkhead or effective sealing device should be provided at both ends of each casing pipe to seal the annular space between the two pipes. Vent pipe should be included to allow ventilation and reduce the risk of condensation buildup and flooding.
6. As a result of the installation process, an annular void is usually created around the outside of the casing pipe. Provisions should be made to pressure grout or effectively seal (e.g., bentonite slurry) this void space.
7. Requirements below are provided to establish minimums for determination of the length of pipe to be installed. It is strongly recommended that pipes be installed perpendicular (between 70 and 90 degrees) to the canal alignment. Regardless, the pipe must extend completely through the Bureau of Reclamation’s (Reclamation) right-of-way (ROW). These minimums do not relieve the applicant’s engineer from performing an onsite investigation or other work to determine local conditions that may require additional pipe length.

Jacking pit configuration, location, and length of pipe to be installed should be based on the following parameters:

- a. One operating road shall remain open to vehicular traffic at all times.

- b. The minimum operating road embankment top width to be maintained during construction should be either 14 feet wide, the width of the existing embankment, or as required by Reclamation.
 - c. As a minimum, jacking pit excavations should not be within:
 - (1) A line drawn from the outside edge of the operating road embankment extended downward and away from the canal at a slope of 3/4 horizontal to 1 vertical.
 - (2) A line drawn from the outside edge of the top of the concrete lining extended downward and away from the canal at a slope of 1 horizontal to 1 vertical.
 - d. To contain the slurry during installation, jacking pits should be constructed so that natural ground or a compacted dike is entirely around the pit to an elevation at least 1 foot above the top of the canal lining.
 - e. All excavations should be in compliance with Occupation Safety and Health Administration regulations and Reclamation's Health and Safety Standards.
 - f. If the contractor elects to install shoring in the jacking pits, all shoring designs should be prepared by a Professional Engineer knowledgeable in said type of work. A copy of the shoring designs should be submitted to Reclamation.
8. Jacking pits should be backfilled with native material and mechanically compacted to 95 percent of the maximum dry density per ASTM D-698.
9. The contractors should be responsible for any damage to the canal section during the construction of a crossing, and the contractor shall repair the damage at their own expense.
10. If an emergency situation develops during construction, the contractor should immediately notify appropriate contacts with Reclamation. Reclamation must approve further work at that point.
11. The minimum distance between two jacked pipes should be 10 feet.
12. Any pressure lines installed within Reclamation's ROW must have adequate thrust restraint at bends and valves. Specified design pressures and thrust restraint calculations shall be provided to Reclamation to confirm the design configuration.

Appendix B

**Guidelines – Removal of Trees and Other
Vegetative Growth from Earth Dams,
Dikes, and Conveyance Features**

**Excerpted from: Review of Operation and Maintenance
Program Field Examination Guidelines**

APPENDIX B

GUIDELINES REMOVAL OF TREES AND OTHER VEGETATIVE GROWTH FROM EARTH DAMS, DIKES, AND CONVEYANCE FEATURES*

Growth of trees and other significant vegetation on or adjacent to earth dams, dikes, and conveyance features, should be prevented from becoming established for the following reasons:

1. To allow proper surveillance and inspection of the structures and adjacent areas for seepage, cracking, sinkholes, settlement, deflection, and other signs of distress.
2. To allow adequate access for normal and emergency Operation and Maintenance (O&M) activities.
3. To prevent damage to the structures due to root growth, such as shortened seepage paths through embankments; voids in embankments from decayed roots or toppled trees; expansion of cracks or joints of concrete walls, canal lining, or pipes; and plugging of perforated or open-jointed drainage pipes.
4. To discourage animal/rodent activity (by eliminating their food source and habitat), thereby preventing voids within embankments and possible shortened seepage paths.
5. To allow adequate flow-carrying capability of water conveyance channels (e.g., spillway inlet and outlet channels; open canals, laterals, and drains).

The growth of trees and potentially detrimental vegetation should be prevented during its early stages as part of the operating office or entity's normal O&M program. Early control is generally the most cost effective means of avoiding potential adverse effects on these structures from their continued growth. Control efforts may consist of applying herbicides, spraying, cutting, and/or removing the trees or undesirable vegetation.

Suggested clearance zones (areas of control) adjacent to these structures are provided within these guidelines. Concerted efforts should be made to maintain these clearance zones. However, site-specific conditions, such as landscaping, accessibility, erosion susceptibility of material in the area, type of abutment material, original construction clearance zone, right-of-way easement, etc., may influence the necessity or success of these control efforts.

Should trees and/or other significant vegetation become established, proper O&M of earth embankment dams, dikes, and conveyance features, may require their discriminate removal. During the Review of Operation and Maintenance examination for the facility or system, the examiners should use these guidelines, along with their experience and professional judgment, to evaluate the need for removal of such established growth.

If trees and other significant growth are identified by the examination team in locations delineated by these guidelines, a determination should be made regarding their need for removal. If the identified vegetation is deemed to be in location such that its existence is not considered to be detrimental and therefore does not require removal, sufficient justification should be provided during the examination and included within the associated report to support that determination.

* Enclosure to memorandum dated April 26, 1989, from Manager, Project Operation Services Staff, to all Regional Directors, Subject: Revised Guidelines — *Removal of Trees and Other Vegetative Growth From Earth Dams, Dikes, and Conveyance Features.*

When, in the opinion of an Review of Operation and Maintenance examination team, such established growth requires removal, specific followup procedures should be addressed as part of the examination. Such procedures may include the need for right-of-way easement determination; the need for an assessment for potential environmental impacts (any impact assessments should be coordinated with designated regional or project office environmental staff); whether removal of the root system is necessary and to what extent; the method of removal and recompaction of material within the void created; and the need for any erosion stabilization measures.

National Environmental Policy Act compliance is required relative to such tree and vegetation removal. Additionally, the application of herbicides should comply with applicable provisions of the Endangered Species Act. The determination of appropriate procedures to be followed in assessing potential environmental impacts and mitigation (including those to wildlife and its habitat) will be the responsibility of each regional and/or project office. This will include the preparation of an appropriate National Environmental Policy Act document and an assessment of the need for mitigation prior to the onset of removal activities. Appropriate National Environmental Policy Act compliance may include a Categorical Exclusion Checklist, an environmental assessment followed by a Finding of No Significant Impact, or an Environmental Impact Statement.

The following guidelines and associated clearance zones should be used for all Reclamation earth dams, dikes, and conveyance features. They are not considered "policy;" rather, they are guides which should be used with reasonable judgment and practicality.

1. Trees and detrimental vegetative growth should be prevented from becoming established on the surface of all earth dam, dike, and conveyance feature embankments. A small amount of shallow-rooted vegetation may be acceptable to aid in erosion protection and slope stabilization. Mowing of grass and other small vegetation is desirable and may be necessary to allow proper surveillance of the surfaces and observation of animal/rodent activity.
2. A clearance zone of 25 feet beyond each contact (groins and toe) of earth dam embankments and dikes should be maintained of all trees and detrimental vegetation. Similarly, a clearance zone of 15 feet should be maintained beyond the outside toe of all fill sections/embankments for open canals and laterals. These clearance zones may need to be extended for seepage areas or other conditions where proper surveillance or access may be warranted.
3. Earth dam, dike, and conveyance feature (open canal and lateral) embankments have large tree growth or stumps from previously cut trees on or near them should be evaluated, usually in conjunction with an Review of Operation and Maintenance examination, for any necessary future action, (i.e., monitor, excavation and backfill, rebuild, etc.). Generally, sizable old root systems of large trees should be grubbed out and the embankment replaced and compacted to prevent the development of piping action or erosion. Likewise, any sizable voids resulting from animal/rodent burrowing activity should be filled and compacted. Seeding may be necessary for protection from surface erosion.
4. Spillway inlet and outlet channels, outlet works discharge channels, and other open conveyance channels (open canals, laterals, and drains) should be free of vegetative growth that could significantly impede water flow or reduce design capacity.
5. A clearance zone of 25 feet adjacent to all concrete structures associated with such facilities should be maintained of all trees and detrimental vegetative growth to prevent damage from root growth, to allow proper surveillance, and to allow adequate O&M access.

6. Associated cut slopes adjacent to open canals and laterals should be kept clear of vegetation which, if toppled and/or uprooted, could affect operations or O&M access.

7. For pipe conveyance systems (such as siphons, aqueducts, discharge lines, perforated or open-jointed drains, etc.), to provide O&M access and to prevent root encroachment, a clearance zone should be maintained 15 feet from each side of the pipeline. However, in some cases, farming of annual crops over pipelines may be permissible.

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