

**FEMA REGION VI MITIGATION GRANT PROGRAM  
ENGINEERING CHECKLIST**

Project Title:  
Applicant:  
Project Number:

Project Location:  
Grant Number:

<u>Yes</u>	<u>No</u>	<u>Attached</u>	<u>Overall Project Information</u>
		<input type="checkbox"/>	How was this project identified?
<input type="checkbox"/>	<input type="checkbox"/>		Will this project change effective BFE's, floodplain or floodway boundaries?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Has a flood study been prepared?

			What level of planning has been completed?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conceptual – General layout, flow capacity, due diligence study, and quantity estimate
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preliminary – 35% plans with survey, plan and profile sheets, grade lines and potential conflicts identified
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Final Plans – 100% complete plans and bid documents
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Has a Conditional Letter Of Map Revision (CLOMR) been prepared? <input type="checkbox"/> Prepared <input type="checkbox"/> Submitted <input type="checkbox"/> Approved

**Structural Elements**

- 1) Check “Yes” for those elements that are proposed in this project,
- 2) list the number of each type of proposed structural element,
- 3) provide one copy of the corresponding “Structure Check List” for each proposed structure.

<u>Yes</u>	<u>No</u>	<u>Number</u>	<u>Structure Type</u>	<u>Page</u>
<input type="checkbox"/>	<input type="checkbox"/>		Detention / Retention	2
<input type="checkbox"/>	<input type="checkbox"/>		Diversion	2
<input type="checkbox"/>	<input type="checkbox"/>		Berm / Floodwall	3
<input type="checkbox"/>	<input type="checkbox"/>		Flap Gate / Flood Gate	3
<input type="checkbox"/>	<input type="checkbox"/>		Channelization	4
<input type="checkbox"/>	<input type="checkbox"/>		Bridge / Culvert	4

**FEMA REGION VI MITIGATION GRANT PROGRAM  
ENGINEERING CHECKLIST**

Project Title:  
Applicant:  
Project Number:

Project Location:  
Grant Number:

**Detention / Retention Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_  
 Drainage Area: \_\_\_\_\_ sq. mi. Type of Structure:  Detention  Retention  
 Does any portion meet the state definition of a Dam?  Yes  No

Design Storm: \_\_\_\_\_ Classification \_\_\_\_\_

	Design Storm	100-Year
Peak Inflow (cfs)		
Peak Outflow (cfs)		
Storage Volume (ac-ft)		

Sizing Method:  Computer Model (HEC-1, HEC-HMS, TR-20, etc):  
 Modified Rational Method  Other:

Immediate downstream maximum non-damaging discharge: \_\_\_\_\_ cfs

**Diversion Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_  
 Drainage Area: \_\_\_\_\_ sq. mi. Type of Structure:  Off Channel Storage  Other:

Design Storm: \_\_\_\_\_

Peak Inflow: \_\_\_\_\_ cfs Diverted Flow: \_\_\_\_\_ cfs Remaining Flow: \_\_\_\_\_ cfs

Diversion is proposed by:  Gravity  Pumping

Proposed pump \_\_\_\_\_ Number: \_\_\_\_\_ Size: \_\_\_\_\_ gpm

Description of sizing method:  is \_\_\_\_\_  is not attached

Immediate downstream maximum non-damaging discharge: \_\_\_\_\_ cfs

**FEMA REGION VI MITIGATION GRANT PROGRAM  
ENGINEERING CHECKLIST**

Project Title:  
Applicant:  
Project Number:

Project Location:  
Grant Number:

**Berm / Floodwall Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_

Type of Structure:     Berm         Floodwall     Other:

Design Storm:        Proposed Material:     Earthen     Concrete     Other:

	Drainage Area (sq. mi)	Design Discharge (cfs)	100-year Discharge (cfs)
Water side			
Land side			

Minimum Freeboard: Average:        ft    Upstream End:        ft    Downstream End:        ft

- Internal Drainage Plan         Yes         No         Attached
- Geotechnical Report         Yes         No         Attached
- Hydraulic Study         Yes         No         Attached
- Proposed Pumps         Yes         No         Description Attached

Immediate downstream maximum non-damaging discharge:        cfs

**Flap Gates / Flood Gates Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_

Design Storm:        Hydraulic Study         Yes         No         Attached

	Drainage Area (sq. mi)	Design Discharge (cfs)	100-year Discharge (cfs)
Water side			
Land side			

Upstream Pool Elevation:        ft. msl.    Lowest Finished Floor of Adjacent Structures:        ft. msl.

Pool elevation determined by:         Computer Model (HEC-1, HEC-HMS, TR-20, etc):  
 Modified Rational Method         Other:

**FEMA REGION VI MITIGATION GRANT PROGRAM  
ENGINEERING CHECKLIST**

Project Title:  
Applicant:  
Project Number:

Project Location:  
Grant Number:

**Bridge / Culvert Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_

Method used to size the proposed structure (e.g., HEC-2, HEC-RAS, WSPRO, HY8): \_\_\_\_\_

Dimensions: Culvert Set #1      barrels      foot span by      foot rise      Material:  
                   Culvert Set #2      barrels      foot span by      foot rise      Material:  
                   Culvert Set #3      barrels      foot span by      foot rise      Material:

Upstream Flowline:      Downstream Flowline:      High Chord:      Low Chord:

Total cross sectional area below low chord:      sq. ft.      Drainage Area:      sq. mi.

Design Storm:      Structure Capacity:      cfs at Headwater Elevation:      ft. msl.

	Design Storm	100-Year
Peak Discharge (cfs)		
Tail Water (ft msl)		
Headwater (ft msl)		

Immediate downstream maximum non-damaging discharge:      cfs

**Channelization Check List**

Fill out this section for each element for this project

Name/Description of Element: \_\_\_\_\_ Number \_\_\_\_\_ of \_\_\_\_\_

Proposed material:     Earthen/grass lined     Concrete     Gabion Lined     Other:

Drainage Area:      sq. mi.      Design Storm:

Design Peak Discharge:      cfs    100-Year Peak Discharge:      cfs

Channel Capacity:      cfs       with      feet of freeboard       without freeboard

Sizing Method:       Computer Model (HEC-2, HEC-RAS, etc):  
                            Hand Calculation (Manning's Equation or other):

Immediate downstream maximum non-damaging discharge:      cfs